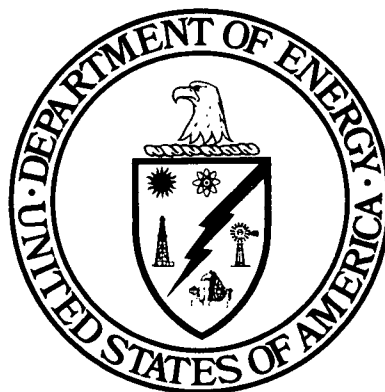


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December 1977

Monthly Energy Review



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Feature articles appearing in previous issues:

Energy Consumption—March 1975

Nuclear Power—April 1975

The Price of Crude Oil—June 1975

U.S. Coal Resources and Reserves—July 1975

Propane, A National Energy Resource—
September 1975

Short-Term Energy Supply and Demand Fore-
casting at FEA—October 1975

Curtailments of Natural Gas Service—January
1976

Home Heating Conservation Alternatives and the
Solar Collector Industry—March 1976

Trends in United States Petroleum Imports—
September 1976

Crude Oil Entitlements Program—January 1977

Motor Gasoline Supply and Demand—July 1977

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Part 1 Overview

Overview

Domestic energy production in October 1977 totaled 5.23 quadrillion Btu (the equivalent of 29.1 million barrels per day of crude oil*), the highest October level since 1974 and an increase of 4.4 percent over the level for same month last year. The most significant production gains were reported for crude oil and coal (6.5 percent and 12.0 percent, respectively), and nuclear electric power generation was 10.9 percent higher. Natural gas and hydroelectric power output both declined from October 1976 levels (by 1.2 percent and 17.3 percent, respectively). Average daily domestic energy production for the January-October 1977 period was 1.2 percent greater than the output rate during the comparable 1976 period, a distinct reversal from the downtrend in domestic energy output which has prevailed for the past 4 years. Percent changes in average daily production of the major energy resources for the year to date were posted as follows: crude oil, -0.2; natural gas, +0.6; coal, +4.5; hydroelectric, -26.8; nuclear, +35.2.

Despite the gains in energy production, U.S. imports of fossil fuels during the first 10 months of 1977 were up 22.2 percent over the import rate for the comparable period of 1976, averaging 54.1 trillion Btu per day (or 9.3 million barrels per day of crude oil equivalent*). Crude oil imports, accounting for 71 percent of the total fuels imported, increased 28.1 percent. Refined product imports, 24 percent of the total, were 11.2 percent greater. Natural gas imports, amounting to 5 percent of the total, were up 3.8 percent over last year.

Domestic consumption of energy during the first 9 months of 1977 averaged 206 trillion Btu per day (or 35.6 million barrels per day of crude oil equivalent*), 4.5 percent higher than the consumption rate for the corresponding period of 1976. The largest consumption growth was for nuclear power (38.3 percent), reflecting the 7.2 percent increase in domestic nuclear capacity since September 1976. Consumption of coal and petroleum increased 7.2

percent and 7.6 percent, respectively. Natural gas use, on the other hand, was down 1.0 percent during the period, as producers diverted supplies into underground storage reservoirs to replenish inventories that were depleted because of last winter's severe cold weather. Hydroelectric power consumption was off 26.9 percent because of the prolonged drought in the Nation's major watersheds.

Fuel stocks were at record levels at the start of the winter heating season, as suppliers and consumers prepared for a possible coal miners strike on December 6 (which would affect about half of the Nation's coal production). Coal stocks at utilities on September 30 were a record high of 128 million tons, or 96 days' supply at current consumption rates. October crude oil stocks reached an alltime high of 342 million barrels (23 days' supply), up 15 percent from the October 1976 stock level. New highs were also posted for distillate fuel oil stocks (252 million barrels, 79 days' supply) and residual fuel oil stocks (88 million barrels, 32 days' supply), with increases of 6.9 percent and 11.2 percent over the respective levels on October 31, 1976. Working gas** in underground natural gas storage reservoirs at the end of the month was 8.4 percent greater than that for October 1976.

Nine foreign crude oil shipments, totaling 2,434,463 barrels and costing an average of \$14.50 per barrel, were discharged in November for the Strategic Petroleum Reserve (SPR).*** The total SPR volume on November 30, 1977, was 5,062,859 barrels. The SPR was established in December 1976 to insulate the national economy from future major petroleum supply disruptions.

Retail gasoline prices continued a 4-month period of stability in October registering either minor declines or no changes at all. Full service regular gasoline prices dropped 0.1 cent to 63.2 cents per gallon, while self service regular declined 0.3 cent to 58.2 cents per gallon. Premium and unleaded

*One barrel of crude oil contains approximately 5.8 million Btu.

**Gas available for withdrawal. See footnotes, page 28.

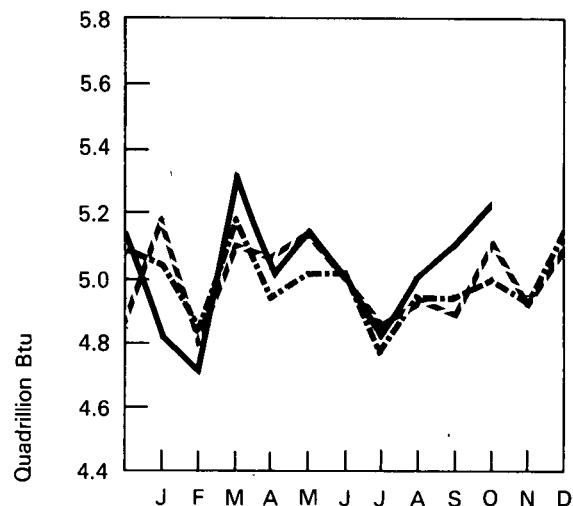
***Foreign crude oil volumes purchased for the SPR will not be counted in petroleum supply, demand, import, and stocks statistics until withdrawn from storage for actual consumption.

(regular) gasoline full service retail prices were unchanged at 68.9 and 67.0 cents per gallon, respectively.

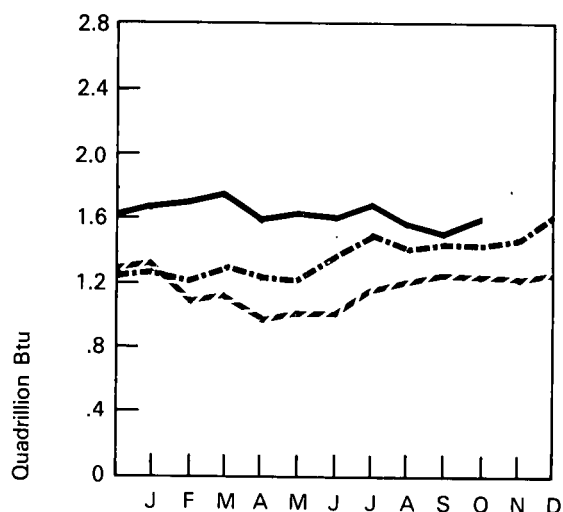
Total world crude oil production increased for the third month in a row during September to 59.9 million barrels per day. Year-to-date production is running 6 percent ahead of last year, reflecting increased output in Mexico and the North Sea, and the startup of Alaskan North Slope production.

	Domestic Production of Energy*	Imports of Fossil Fuels**	Domestic Consumption of Energy***
1972 TOTAL	62.937	11.563	71.895
1973 TOTAL	62.373	14.519	74.551
1974 TOTAL	61.138	14.114	72.601
1975			
January	5.199	1.334	6.927
February	4.793	1.093	6.054
March	5.118	1.128	6.267
April	5.060	0.971	5.685
May	5.148	1.030	5.368
June	4.999	1.027	5.315
July	4.849	1.164	5.550
August	4.942	1.220	5.634
September	4.896	1.272	5.388
October	5.118	1.232	5.801
November	4.918	1.210	5.747
December	5.095	1.255	6.821
TOTAL	60.134	13.935	70.557
1976			
January	5.062	1.297	7.173
February	4.841	1.209	6.248
March	5.199	1.300	6.253
April	4.926	1.246	5.732
May	5.040	1.231	5.656
June	5.038	1.390	5.693
July	4.782	1.506	5.884
August	4.958	1.417	5.825
September	4.953	1.465	5.603
October	5.012	1.448	6.104
November	4.922	1.498	6.586
December	5.150	1.609	7.493
TOTAL	59.884	16.617	74.252
1977			
January	4.819	1.700	7.706
February	4.704	1.718	6.522
March	5.323	1.786	6.400
April	5.004	1.604	5.833
May	R5.154	R1.638	5.850
June	†5.034	R†1.600	R†5.946
July	R†4.801	R†1.697	R†6.064
August	R†5.043	R†1.584	R†6.109
September	R†5.107	R†1.518	†5.889
October	†5.232	†1.606	NA
TOTAL	50.221	16.450	56.320
	(10 months)	(10 months)	(9 months)

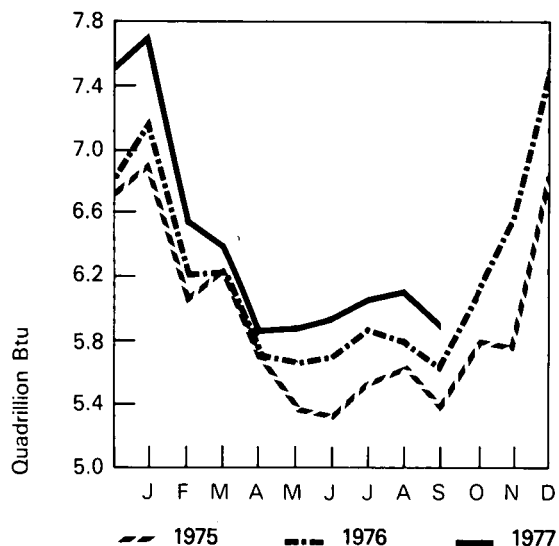
Domestic Production of Energy



Imports of Fossil Fuels



Domestic Consumption of Energy



*See Explanatory Note 1.
 **See Explanatory Note 2.
 ***See Explanatory Note 3.
 †Preliminary data.
 R=Revised data.
 NA=Not available.

Source: Energy Information Administration (EIA) calculations based on data appearing elsewhere in this publication.

Part 2 Crude Oil and Refined Petroleum Products

Crude Oil and Refined Petroleum Products

Total domestic demand for petroleum products averaged 18.0 million barrels per day* in October 1977, 5.7 percent above the October 1976 rate. Average daily demand for January through October 1977 was 18.3 million barrels per day, compared with 17.0 million barrels per day for the same 10-month period of 1976.

Total petroleum imports averaged 8.4 million barrels per day in October. The January-October imports average was 23.5 percent above the rate for the comparable 1976 period.

Motor gasoline demand in October was 7.2 million barrels per day, 3.6 percent greater than last October's demand.

Residual fuel oil demand averaged 2.7 million barrels per day in October, 9.1 percent higher than in October 1976. Stocks of residual fuel oil continued building up to levels higher than the previous 2 years.

Distillate fuel oil demand averaged 3.2 million barrels per day in October, 5.7 percent higher than a year ago. Distillate fuel oil stocks stood at 251.9 million barrels at the end of October, 6.9 percent above the level for October 1976, and 11.4 percent above the October 1975 level.

Domestic production of crude oil in October 1977 is estimated at 8.6 million barrels per day, including approximately 0.7 million barrels from the Alaskan North Slope.

Strategic Petroleum Reserve

A total of 2,434,463 barrels of foreign crude oil* were added to the Strategic Petroleum Reserve (SPR) in November, bringing the total SPR volume on November 30, 1977, to 5,062,859. The approximate cost of the November crude oil deliveries was \$14.50 per barrel (including transportation fees).

The Strategic Petroleum Reserve was established by the Energy Policy and Conservation Act (P.L. 94-163) enacted December 22, 1975.** The current plan provides for storage of a 90-day supply of crude imports, or approximately 500 million barrels, by December 1980.

*Foreign crude oil volumes purchased for the SPR will not appear in petroleum supply, demand, and import statistics until withdrawn from storage for actual consumption.

**This law authorizes the storage of up to 1 billion barrels of crude oil and petroleum products.

*October 1977 estimates are based upon preliminary data from the American Petroleum Institute and will be revised to conform with data published in EIA *Energy Data Reports* as available.

Crude Oil

		Crude Input to Refineries	Domestic Production*	Imports*	Stocks*
		Thousands of barrels per day			Thousands of barrels
1972	AVERAGE	11,696	9,441	2,216	**246,395
1973	AVERAGE	12,431	9,208	3,244	**242,478
1974	AVERAGE	12,133	8,774	3,477	**265,020
1975	January	12,297	8,455	4,029	270,462
	February	12,135	8,591	3,828	276,755
	March	11,905	8,493	3,656	279,989
	April	11,803	8,457	3,378	281,908
	May	11,983	8,379	3,486	280,961
	June	12,417	8,421	3,905	276,132
	July	12,915	8,336	4,192	264,157
	August	13,046	8,249	4,581	256,616
	September	12,945	8,280	4,689	259,446
	October	12,365	8,324	4,389	269,584
	November	12,689	8,278	4,623	270,950
	December	12,779	8,254	4,476	271,354
	AVERAGE	12,442	8,375	4,105	
1976	January	12,560	8,211	4,595	289,296
	February	12,834	8,196	4,208	277,414
	March	12,877	8,175	4,738	283,112
	April	12,727	8,080	4,790	286,628
	May	12,920	8,168	4,669	283,982
	June	13,799	8,144	5,621	281,715
	July	13,901	8,104	5,792	282,599
	August	13,888	8,074	5,556	277,272
	September	13,716	8,185	5,875	284,357
	October	13,319	8,049	5,699	297,683
	November	14,101	8,043	5,946	298,836
	December	14,333	8,006	5,925	285,471
	AVERAGE	13,416	8,119	5,287	
1977	January	14,140	7,790	6,288	294,037
	February	14,740	8,067	6,652	291,387
	March	14,270	8,022	6,633	299,464
	April	14,185	8,079	6,785	318,588
	May	R14,605	R8,009	R6,821	R328,559
	June	14,903	7,896	5,943	325,499
	July	14,924	7,888	7,021	334,136
	August	14,690	R8,307	R6,286	330,471
	September	R14,966	R8,623	R6,189	R323,315
	October	14,600	8,575	6,457	342,485
	AVERAGE (10 months)	14,600	8,125	6,607	

*See Definitions.

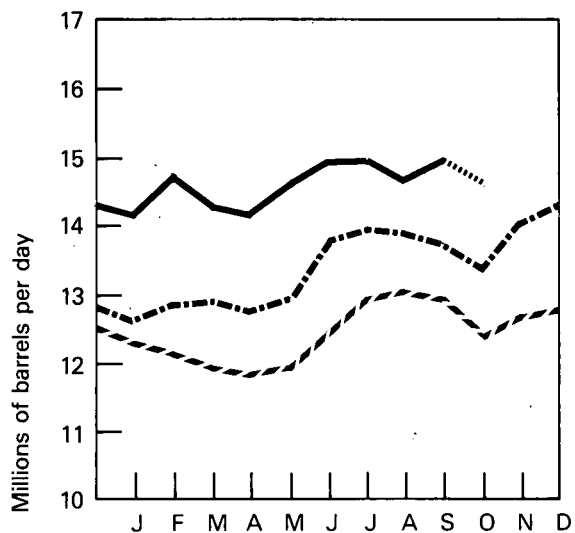
**Total as of December 31.

R=Revised data.

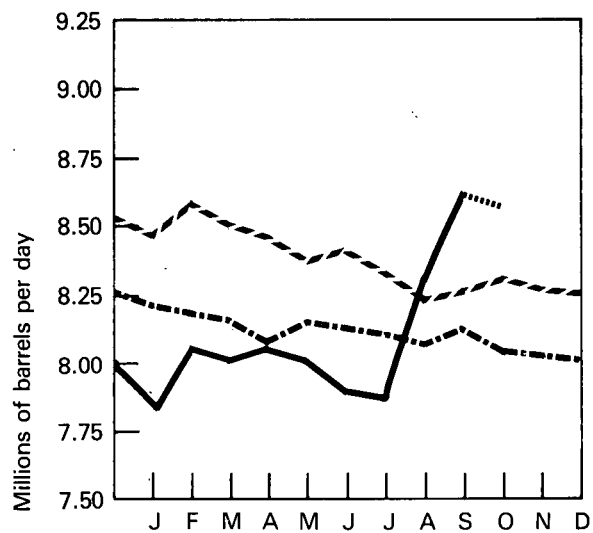
Sources: Bureau of Mines (BOM) *Mineral Industry Surveys*, "Petroleum Statement, Annual" and "Petroleum Statement, Monthly" through April 1977; Energy Information Administration (EIA) *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 and "Monthly Petroleum Statistics Report" for June through September 1977; October 1977 data are EIA estimates based on data from the American Petroleum Institute (API) "Weekly Statistical Bulletin."

Crude Oil

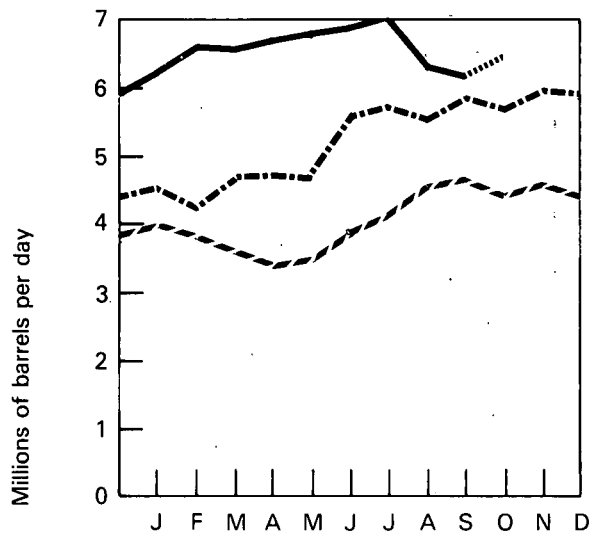
Crude Input to Refineries



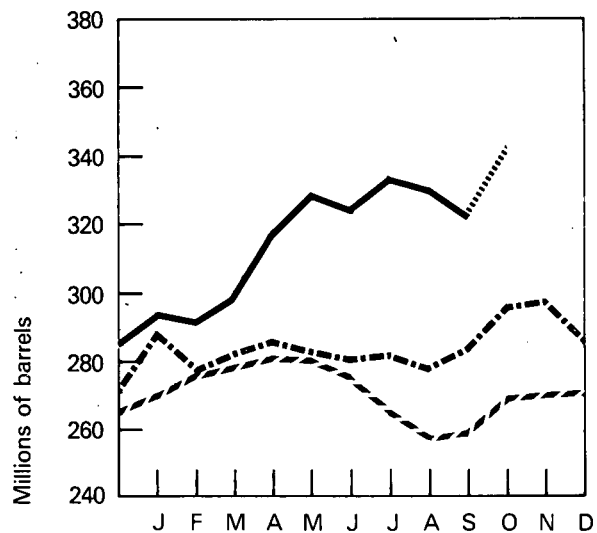
Domestic Production



Imports



Stocks



--- 1975 BOM
 -.- 1976 BOM
 — 1977 BOM, EIA
 1977 API

Total Refined Petroleum Products

		Domestic Demand	Imports*
		Thousands of barrels per day	
1972	AVERAGE	16,367	2,525
1973	AVERAGE	17,308	3,012
1974	AVERAGE	16,653	2,635
1975	January	18,004	2,832
	February	17,084	2,348
	March	16,315	2,074
	April	16,048	1,662
	May	15,155	1,728
	June	15,610	1,502
	July	15,740	1,767
	August	15,806	1,717
	September	15,768	2,115
	October	16,377	1,940
	November	15,777	1,796
	December	18,185	1,949
	AVERAGE	16,322	1,951
1976	January	18,598	2,071
	February	17,429	2,423
	March	17,299	1,945
	April	16,671	1,805
	May	15,977	1,654
	June	16,836	1,858
	July	16,613	2,099
	August	16,642	1,826
	September	16,825	2,038
	October	17,052	1,808
	November	18,847	2,115
	December	20,506	2,468
	AVERAGE	17,443	2,007
1977	January	20,481	2,594
	February	20,427	3,278
	March	18,056	2,610
	April	17,570	1,886
	May	R16,960	R1,753
	June	18,113	1,746
	July	17,547	1,933
	August	R17,778	R2,015
	September	R17,794	R2,024
	October	18,030	1,929
	AVERAGE (10 months)	18,259	2,169

Total Petroleum Imports (Crude Oil and Refined Products)

Thousands of barrels per day

4,741

6,256

6,112

6,861

6,176

5,730

5,040

5,214

5,406

5,959

6,298

6,804

6,329

6,419

6,425

6,056

6,666

6,631

6,683

6,595

6,323

7,479

7,890

7,382

7,913

7,508

8,060

8,393

7,295

8,882

9,930

9,243

8,671

R8,574

8,689

8,954

R8,301

R8,213

8,386

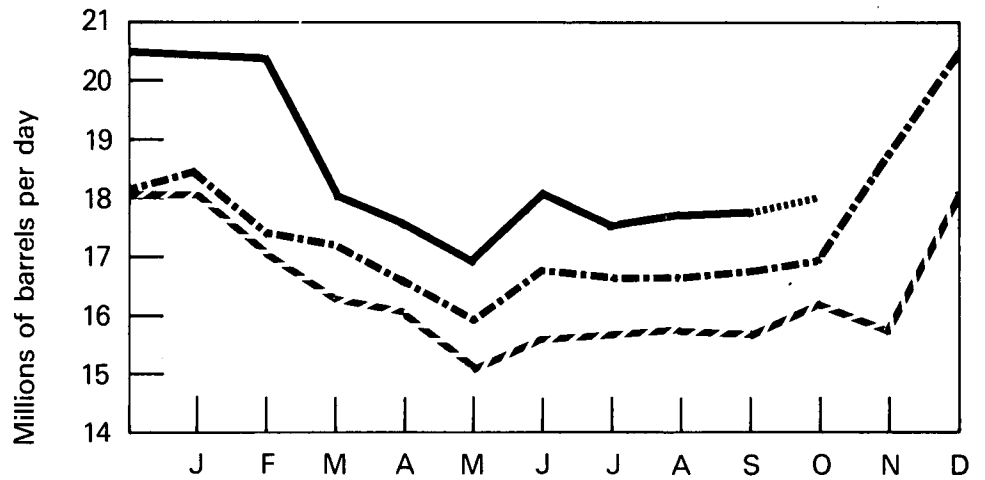
8,776

*See Definitions.

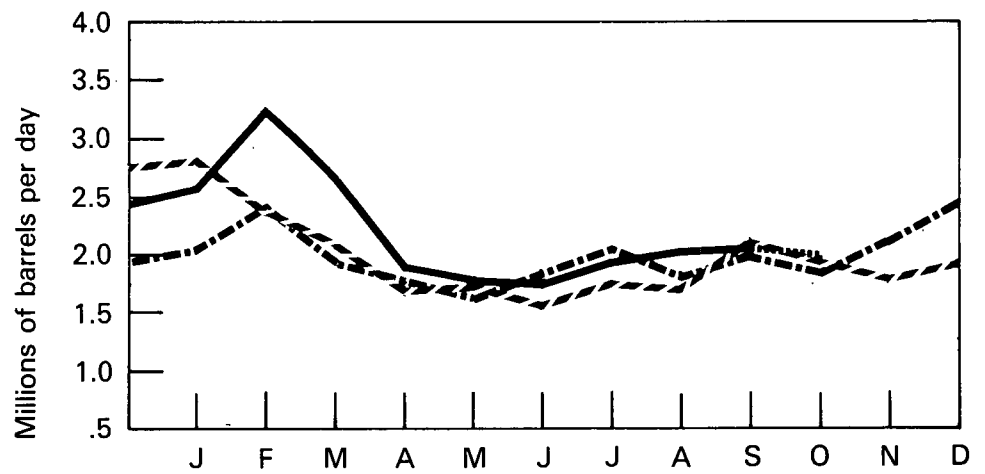
R=Revised data.

Sources: Bureau of Mines (BOM) *Mineral Industry Surveys*, "Petroleum Statement, Annual" and "Petroleum Statement, Monthly" through April 1977; Energy Information Administration (EIA) *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 and "Monthly Petroleum Statistics Report" for June through September 1977; October 1977 data are EIA estimates based on data from the American Petroleum Institute (API) "Weekly Statistical Bulletin."

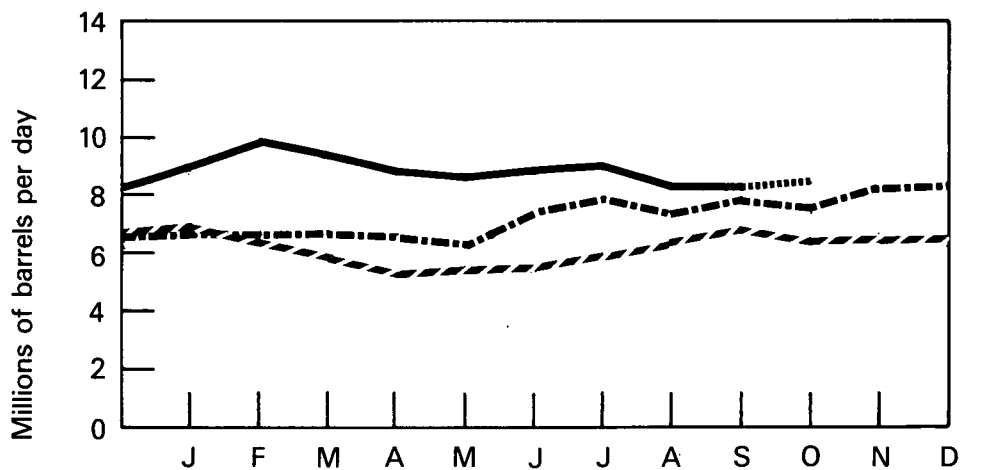
Total Refined Product Domestic Demand



Refined Product Imports



Total Petroleum Imports



--- 1975 BOM
 -.- 1976 BOM
 — 1977 BOM, EIA
 1977 API

Direct and Indirect* U.S. Petroleum Imports from OPEC Countries

	Algeria	Indonesia	Iran	Libya	Nigeria	Saudi Arabia	United Arab Emirates	Venezuela	Other OPEC**	Total OPEC	Arab Members of OPEC
Thousands of barrels per day											
1973											
Direct	134.2	212.7	222.7	164.3	458.9	487.3	70.6	1,124.7	106.5	2,981.9	914.4
Indirect	17.0	25.0	211.0	144.0	149.0	253.0	13.0	509.0	88.0	1,409.0	463.0
TOTAL	151.2	237.7	433.7	308.3	607.9	740.3	83.6	1,633.7	194.5	4,390.9	1,377.4
1974											
Direct	190.2	300.1	468.8	4.4	697.6	460.6	70.5	979.3	88.3	3,259.8	748.5
Indirect	16.9	40.8	262.2	35.9	214.6	214.6	17.3	478.5	128.7	1,409.5	357.9
TOTAL	207.1	310.9	731.0	40.3	912.2	675.2	87.8	1,457.8	217.0	4,669.3	1,106.4
1975											
Direct	281.5	388.4	280.4	232.0	761.5	715.0	116.7	697.6	116.1	3,589.2	1,381.3
Indirect	6.7	49.3	244.4	97.3	76.3	176.6	37.5	332.5	143.2	1,163.8	408.8
TOTAL	288.2	437.7	524.8	329.3	837.8	891.6	154.2	1,030.1	259.3	4,753.0	1,790.1
1976											
Direct											
January	345.5	478.0	387.5	451.3	781.7	1,111.9	118.8	533.7	86.3	4,294.7	2,045.7
February	357.4	465.3	241.2	328.4	830.9	1,080.9	118.5	838.6	102.8	4,364.0	1,925.3
March	347.2	552.0	292.5	372.2	896.8	1,145.0	159.4	468.1	111.8	4,345.0	2,058.5
April	446.5	467.6	323.3	356.2	997.0	1,027.5	195.5	496.8	81.6	4,392.0	2,036.2
May	410.6	485.5	183.7	362.0	855.1	1,141.5	214.5	487.7	135.9	4,276.5	2,138.8
June	501.2	603.6	323.2	487.8	1,127.6	1,205.0	290.1	668.0	70.5	5,277.0	2,486.5
July	451.0	581.0	374.3	487.1	1,136.7	1,327.7	305.2	808.0	208.8	5,679.8	2,711.4
August	510.0	554.5	294.2	463.5	1,029.4	1,317.6	228.1	704.0	133.6	5,234.9	2,597.4
September	435.3	570.2	274.6	491.0	1,173.0	1,288.1	335.1	932.4	198.7	5,698.4	2,748.2
October	357.2	487.4	284.2	456.2	1,097.5	1,366.2	304.4	772.8	232.7	5,358.5	2,578.8
November	502.0	647.1	316.8	533.9	1,173.8	1,316.1	341.1	810.8	170.7	5,812.3	2,768.4
December	379.9	556.4	289.5	637.2	1,193.6	1,404.0	448.0	868.4	194.8	5,971.8	2,956.6
Total Direct	428.3	537.4	298.5	453.3	1,025.2	1,229.8	255.2	699.2	134.0	5,060.9	2,421.0
Indirect	10.0	32.0	248.0	76.0	94.0	136.0	68.0	273.0	82.0	1,019.0	352.0
TOTAL	438.3	569.4	546.5	529.3	1,119.2	1,365.8	323.2	972.2	216.0	6,079.9	2,773.0
1977											
Direct											
January	493.0	619.2	396.8	627.0	1,285.8	1,328.0	319.5	841.8	324.2	6,236.0	3,000.0
February	666.1	570.3	412.4	638.0	1,265.1	1,441.8	316.7	920.6	241.0	6,472.0	3,141.1
March	459.8	567.0	735.0	701.2	1,300.0	1,371.6	369.5	664.3	184.3	6,352.7	3,022.1
April	660.7	523.9	517.2	782.9	1,242.4	1,437.4	323.5	663.3	250.5	6,401.8	3,363.2
May	392.8	512.7	539.3	784.1	1,072.3	1,724.1	237.1	534.4	435.9	6,232.7	3,451.3
June	436.6	671.6	553.0	827.1	1,190.8	1,432.7	438.6	668.7	343.5	6,562.6	3,374.1
Total Direct	515.4	577.3	527.4	727.3	1,225.5	1,456.4	333.9	712.8	297.5	6,373.5	3,225.1
Indirect	18.2	71.1	279.5	128.6	98.9	190.0	101.3	234.0	97.2	1,218.6	516.3
TOTAL (6 months)	533.6	648.4	806.9	855.9	1,324.4	1,646.4	435.2	946.8	394.7	7,592.3	3,741.4

*Indirect imports refer to U.S. imports of petroleum products, primarily from Caribbean and European areas, that have been refined from crude oil produced in other areas. U.S. imports of these products have been prorated to each OPEC country of origin based on the share of total crude oil supply in the Caribbean and European areas which was imported from each OPEC country.

**Includes Ecuador, Gabon, Iraq, Kuwait, and Qatar.

Sources: Bureau of Mines *Mineral Industry Surveys*, "Petroleum Statement, Monthly" and "PAD Districts Supply/Demand, Monthly" through April 1977; EIA *Energy Data Reports*, "Petroleum Statement, Monthly" and "PAD Districts Supply/Demand, Monthly" for May 1977 forward; and EIA estimates.

U.S. Petroleum Imports from Non-OPEC Sources

	Bahamas	Canada	Netherlands Antilles	Puerto Rico	Trinidad and Tobago	Virgin Islands	Other	Total
Thousands of barrels per day								
1973	170.8	1,312.9	573.6	99.3	250.6	329.2	537.8	3,274.2
1974	159.3	1,067.6	509.6	90.4	241.2	391.7	392.6	2,852.4
1975								
January	216.1	949.1	549.4	99.0	232.9	563.5	319.5	2,929.5
February	213.9	854.5	315.2	148.8	255.1	490.3	315.7	2,593.5
March	162.6	746.9	279.5	139.0	185.7	506.4	295.7	2,315.8
April	168.9	704.3	237.7	73.1	171.8	353.3	273.9	1,983.0
May	122.3	574.2	242.9	77.9	237.1	413.4	304.2	1,971.7
June	130.0	872.7	261.6	75.1	204.5	352.6	229.6	2,126.1
July	178.3	889.1	368.3	104.9	281.1	320.8	358.7	2,501.2
August	135.8	887.9	333.1	72.9	289.4	399.1	364.9	2,483.1
September	143.6	918.0	428.6	66.9	283.2	389.7	614.3	2,844.3
October	135.8	946.3	357.8	105.8	222.2	336.3	557.6	2,661.8
November	88.8	893.1	280.0	60.6	265.5	353.0	518.8	2,459.8
December	119.5	907.3	238.0	50.9	262.5	405.9	375.0	2,359.1
TOTAL	152.0	845.2	323.6	89.7	240.9	406.5	377.5	2,435.4
1976								
January	134.1	681.7	291.7	71.0	343.2	468.4	380.2	2,370.3
February	127.6	644.9	262.4	122.2	326.3	462.3	321.7	2,267.4
March	90.4	590.2	328.7	114.0	315.6	424.5	475.5	2,338.9
April	131.9	578.4	274.9	68.5	291.9	341.2	516.5	2,203.3
May	95.2	614.9	214.1	70.6	257.5	388.5	405.7	2,046.5
June	104.2	653.3	190.4	54.3	319.3	427.5	453.0	2,202.0
July	112.8	581.7	259.1	77.9	279.2	386.5	513.4	2,210.6
August	98.5	580.9	268.7	81.5	163.6	437.2	516.6	2,147.0
September	143.1	564.8	273.3	104.1	182.6	408.5	537.9	2,214.3
October	78.3	562.0	239.0	92.2	215.2	460.5	502.0	2,149.2
November	140.4	561.8	267.6	104.1	254.3	454.4	465.3	2,247.9
December	141.5	578.3	400.3	98.5	324.2	408.4	470.5	2,421.3
TOTAL	116.5	599.3	274.6	88.1	272.6	422.3	460.6	2,234.0
1977								
January	170.0	505.9	304.1	82.5	316.2	619.6	647.7	2,646.0
February	289.5	605.1	406.6	86.3	406.3	548.8	1,115.9	3,458.5
March	200.4	561.7	257.3	97.4	286.5	505.5	981.9	2,890.7
April	130.7	506.1	110.1	85.3	210.5	409.0	817.6	2,269.3
May	138.5	437.8	153.7	105.8	308.1	376.2	821.2	2,341.3
June	137.7	493.0	196.2	89.4	271.1	322.0	796.7	2,306.1
TOTAL (6 months)	176.4	517.0	236.1	91.2	298.7	463.2	860.0	2,642.6

Source: Bureau of Mines *Mineral Industry Surveys*, "Petroleum Statement, Monthly" and "PAD Districts Supply/Demand, Monthly," through April 1977; EIA *Energy Data Reports*, "Petroleum Statement, Monthly" and PAD Districts Supply/Demand Monthly" for May 1977 forward.

Motor Gasoline

		Domestic Demand	Production*	Imports	Stocks*
		Thousands of barrels per day			Thousands of barrels
1972	AVERAGE	6,376	6,281	68	**212,770
1973	AVERAGE	6,674	6,527	134	**209,395
1974	AVERAGE	6,537	6,358	204	**218,346
1975	January	6,206	6,509	262	***242,285
	February	6,096	6,276	171	251,915
	March	6,326	6,070	150	248,685
	April	6,718	6,046	133	232,556
	May	6,871	6,126	142	213,947
	June	7,076	6,669	177	207,114
	July	7,041	7,003	209	212,454
	August	7,008	6,872	232	215,480
	September	6,729	6,823	269	226,447
	October	6,778	6,410	207	221,493
	November	6,390	6,602	139	232,091
	December	6,808	6,786	119	234,925
	AVERAGE	6,675	6,518	184	
1976	January	6,398	6,483	92	240,464
	February	6,263	6,472	84	248,854
	March	6,890	6,455	123	239,049
	April	7,159	6,562	99	223,965
	May	6,853	6,775	112	225,037
	June	7,482	7,303	188	225,365
	July	7,315	7,174	190	226,922
	August	7,168	7,149	141	230,578
	September	7,079	6,878	171	229,751
	October	6,929	6,678	138	226,300
	November	7,038	6,938	146	227,742
	December	7,138	7,176	84	231,387
	AVERAGE	6,978	6,838	131	
1977	January	6,466	6,934	222	252,608
	February	6,897	6,817	184	255,519
	March	6,899	6,864	245	262,118
	April	7,348	6,968	269	258,831
	May	R7,034	6,950	202	R262,498
	June	7,590	7,134	246	255,773
	July	7,420	7,248	248	258,105
	August	R7,407	7,187	R181	256,829
	September	R7,314	R7,062	R221	R255,848
	October	7,181	6,922	149	244,896
	AVERAGE (10 months)	7,156	7,010	217	

*See Definitions.

**Total as of December 31.

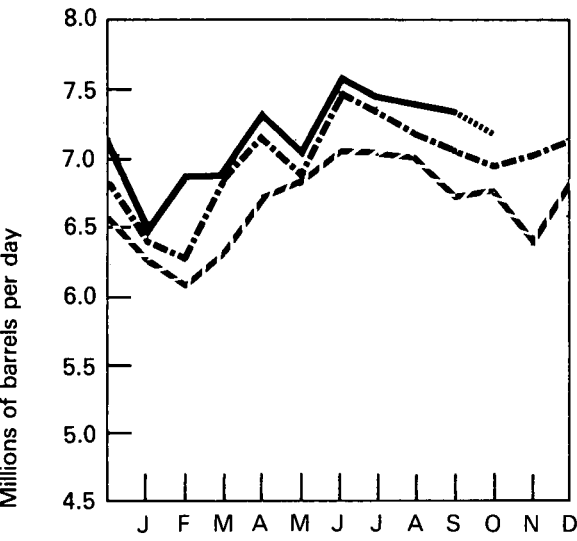
***Bureau of Mines' stock coverage was expanded at the end of 1974 to include an additional 100 bulk terminal operators; the new coverage begins here with January 1975.

R=Revised data.

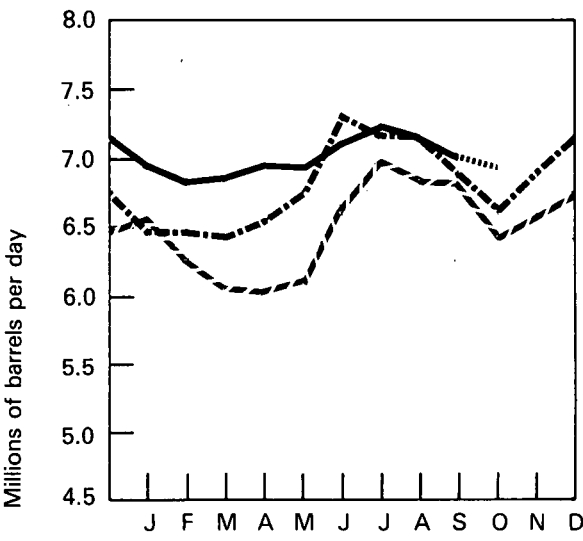
Sources: Bureau of Mines (BOM) *Mineral Industry Surveys*, "Petroleum Statement, Annual" and "Petroleum Statement, Monthly" through April 1977; Energy Information Administration (EIA) *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 and "Monthly Petroleum Statistics Report" for June through September 1977; October 1977 data are EIA estimates based on data from the American Petroleum Institute (API) "Weekly Statistical Bulletin."

Motor Gasoline

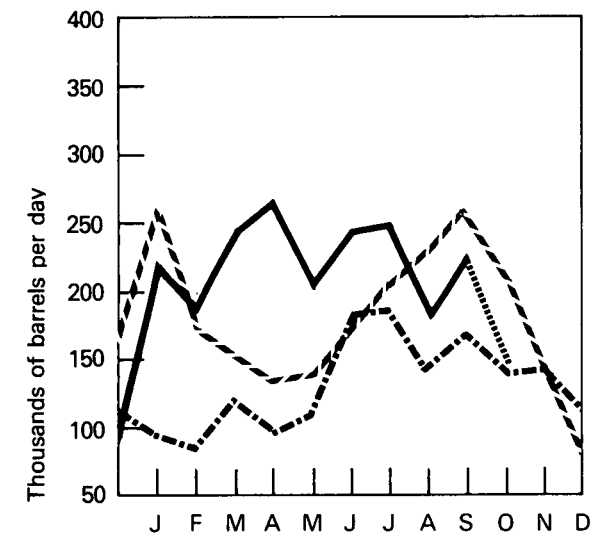
Domestic Demand



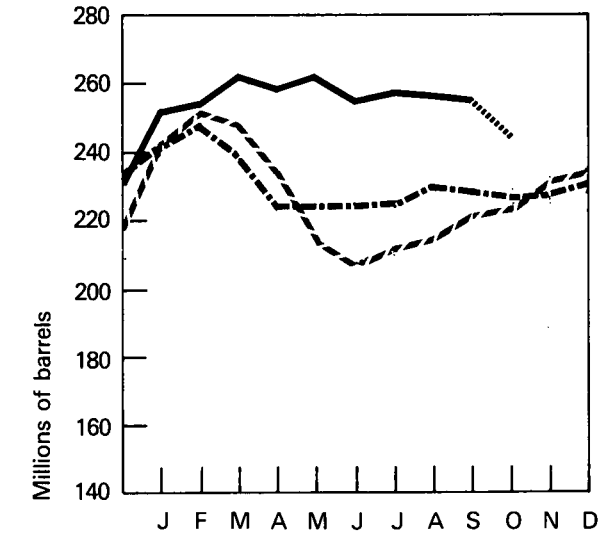
Production



Imports



Stocks



--- 1975 BOM
-.- 1976 BOM
— 1977 BOM, EIA
..... 1977 API

Jet Fuel

		Domestic Demand	Production	Imports	Stocks
		Thousands of barrels per day			Thousands of barrels
1972	AVERAGE	1,045	847	194	*25,493
1973	AVERAGE	1,059	859	212	*28,544
1974	AVERAGE	993	836	163	*29,435
1975	January	1,041	831	229	**30,321
	February	1,075	835	200	29,133
	March	982	896	130	30,456
	April	1,006	864	137	30,263
	May	977	861	133	30,719
	June	989	839	106	29,337
	July	954	883	88	29,798
	August	1,046	958	132	31,103
	September	1,040	907	140	31,291
	October	997	864	106	30,410
	November	999	864	89	28,977
	December	911	849	109	30,380
	AVERAGE	1,001	871	133	
1976	January	948	889	69	30,618
	February	965	918	71	31,180
	March	965	927	86	32,619
	April	1,010	927	108	33,332
	May	960	899	106	34,664
	June	972	879	68	33,879
	July	1,099	933	130	32,732
	August	965	942	38	33,121
	September	1,048	990	63	33,204
	October	911	890	50	34,032
	November	978	920	56	33,859
	December	1,027	900	72	32,085
	AVERAGE	987	918	76	
1977	January	1,054	917	77	30,170
	February	1,036	974	74	30,455
	March	1,041	954	98	30,739
	April	1,019	991	86	32,355
	May	R993	979	48	33,644
	June	993	997	33	34,707
	July	1,027	967	75	35,048
	August	R1,093	1,009	52	33,986
	September	R1,026	R1,004	R30	R34,161
	October	995	945	61	35,253
	AVERAGE (10 months)	1,028	973	63	

*Total as of December 31.

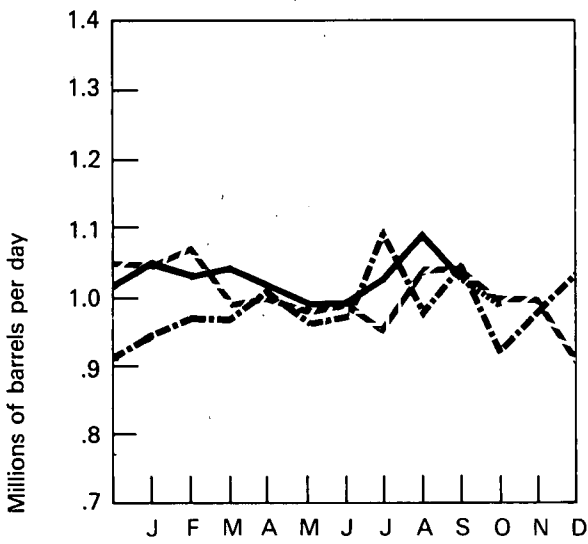
**Bureau of Mines' stock coverage was expanded at the end of 1974 to include an additional 100 bulk terminal operators; the new coverage begins here with January 1975.

R=Revised data.

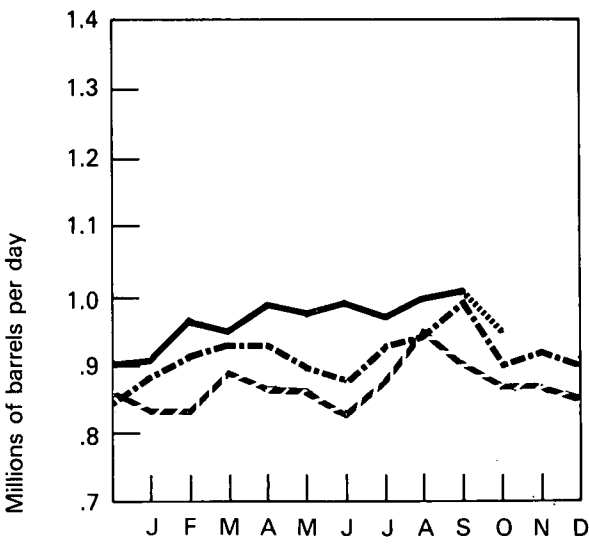
Sources: Bureau of Mines (BOM) *Mineral Industry Surveys*, "Petroleum Statement, Annual" and "Petroleum Statement, Monthly" through April 1977; Energy Information Administration (EIA) *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 and "Monthly Petroleum Statistics Report" for June through September 1977; October 1977 data are EIA estimates based on data from the American Petroleum Institute (API) "Weekly Statistical Bulletin."

Jet Fuel

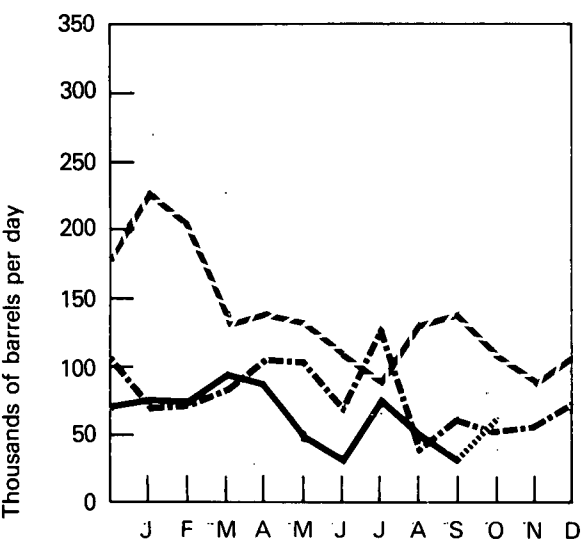
Domestic Demand



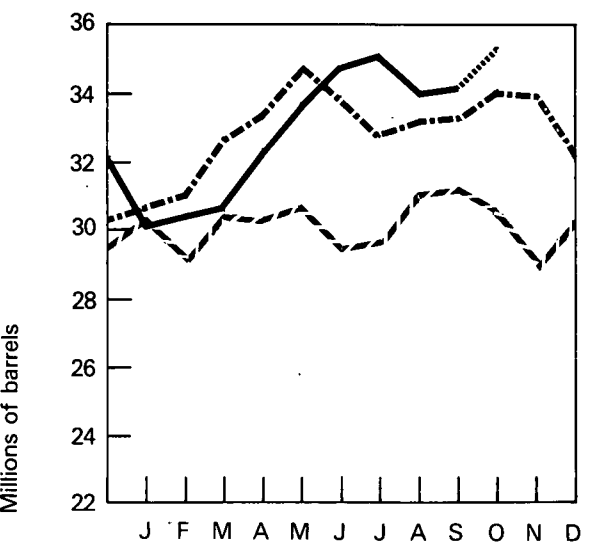
Production



Imports



Stocks



- 1975 BOM
- .- 1976 BOM
- 1977 BOM, EIA
- 1977 API

Distillate Fuel Oil

		Domestic Demand	Production*	Imports	Stocks*
		Thousands of barrels per day			Thousands of barrels
1972	AVERAGE	2,913	2,630	182	**154,284
1973	AVERAGE	3,092	2,820	392	**196,421
1974	AVERAGE	2,948	2,668	289	**200,029
1975	January	3,963	2,852	334	***199,715
	February	3,803	2,679	302	176,696
	March	3,292	2,532	255	161,111
	April	3,094	2,487	110	146,214
	May	2,382	2,431	136	152,027
	June	2,267	2,574	69	163,306
	July	2,109	2,590	104	181,472
	August	2,173	2,592	92	197,323
	September	2,163	2,812	130	220,732
	October	2,677	2,745	104	226,113
	November	2,544	2,767	96	235,749
	December	3,792	2,783	138	208,787
	AVERAGE	2,851	2,653	155	
1976	January	4,298	2,734	164	165,428
	February	3,687	2,961	207	150,439
	March	3,336	2,793	151	138,306
	April	2,788	2,655	96	137,249
	May	2,519	2,738	97	147,057
	June	2,436	2,885	151	165,064
	July	2,255	2,959	126	190,861
	August	2,237	2,982	131	217,930
	September	2,618	2,947	147	232,230
	October	3,029	2,995	141	235,599
	November	3,714	3,180	135	223,648
	December	4,650	3,255	179	185,948
	AVERAGE	3,130	2,924	143	
1977	January	5,111	3,375	350	142,989
	February	4,714	3,702	664	133,261
	March	3,421	3,179	519	141,882
	April	2,942	3,001	153	148,246
	May	R2,777	R3,124	83	162,123
	June	2,776	3,207	132	178,988
	July	2,559	3,206	187	204,754
	August	R2,561	3,210	R159	R229,794
	September	R2,704	R3,311	R159	R252,775
	October	3,201	3,251	143	251,934
	AVERAGE (10 months)	3,267	3,253	252	

*See Definitions.

**Total as of December 31.

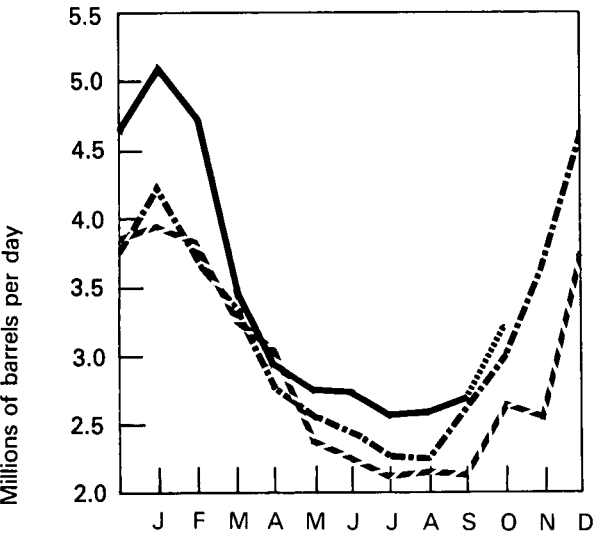
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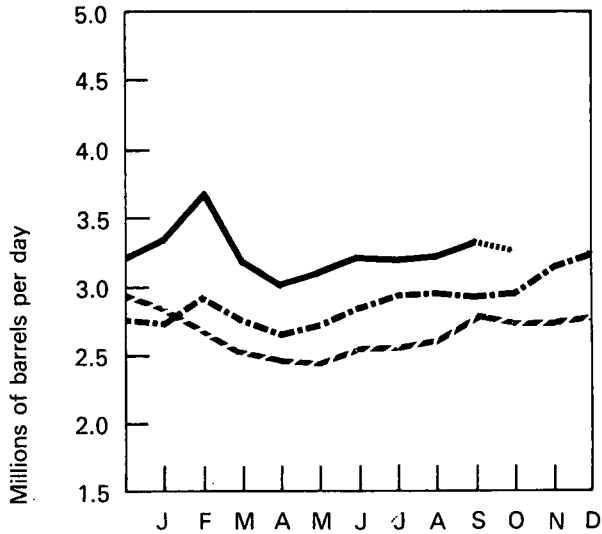
Sources: Bureau of Mines (BOM) *Mineral Industry Surveys*, "Petroleum Statement, Annual" and "Petroleum Statement, Monthly" through April 1977; Energy Information Administration (EIA) *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 and "Monthly Petroleum Statistics Report" for June through September 1977; October 1977 data are EIA estimates based on data from the American Petroleum Institute (API) "Weekly Statistical Bulletin."

Distillate Fuel Oil

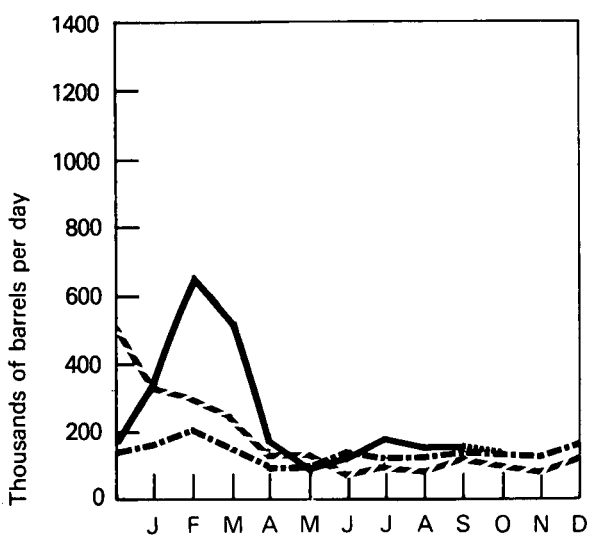
Domestic Demand



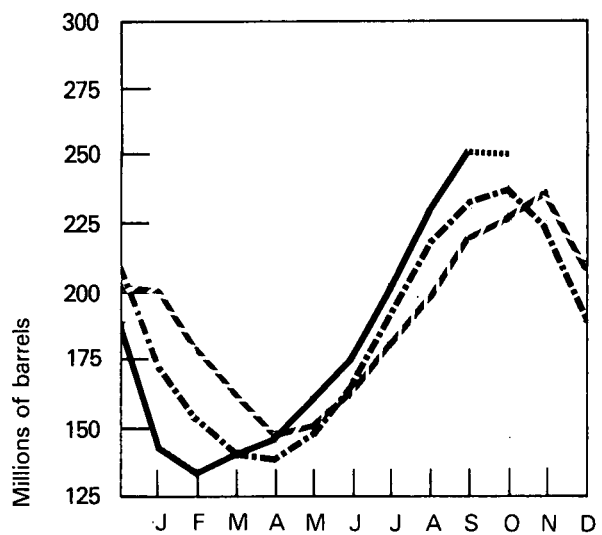
Production



Imports



Stocks



-- 1975 BOM
-.- 1976 BOM
— 1977 BOM, EIA
..... 1977 API

Residual Fuel Oil

		Domestic Demand	Production	Imports	Stocks
		Thousands of barrels per day			Thousands of barrels
1972	AVERAGE	2,529	799	1,742	*55,216
1973	AVERAGE	2,822	971	1,853	*53,480
1974	AVERAGE	2,639	1,070	1,587	*59,694
1975	January	3,253	1,415	1,657	**69,233
	February	2,849	1,354	1,402	66,495
	March	2,669	1,299	1,293	64,148
	April	2,232	1,245	1,054	66,340
	May	2,087	1,151	1,160	73,498
	June	2,177	1,152	902	69,660
	July	2,220	1,155	1,125	71,526
	August	2,157	1,146	1,021	71,857
	September	2,328	1,183	1,311	76,938
	October	2,268	1,165	1,251	81,858
	November	2,405	1,214	1,225	83,131
	December	2,912	1,354	1,283	74,126
	AVERAGE	2,462	1,235	1,223	
1976	January	3,069	1,415	1,406	66,592
	February	3,006	1,394	1,703	68,859
	March	2,779	1,311	1,342	65,132
	April	2,495	1,283	1,258	66,458
	May	2,439	1,257	1,134	65,147
	June	2,520	1,241	1,240	64,272
	July	2,555	1,266	1,462	69,812
	August	2,678	1,321	1,307	68,490
	September	2,517	1,330	1,442	76,436
	October	2,511	1,351	1,234	79,117
	November	3,253	1,581	1,474	73,284
	December	3,608	1,772	1,791	72,344
	AVERAGE	2,786	1,377	1,398	
1977	January	3,741	1,889	1,596	64,749
	February	3,662	1,951	1,943	71,414
	March	3,150	1,715	1,417	71,186
	April	2,855	1,687	1,125	70,165
	May	R2,719	1,671	1,089	73,376
	June	2,942	1,712	1,184	71,914
	July	2,808	1,728	1,271	77,758
	August	R3,006	1,599	R1,439	78,605
	September	R2,886	1,742	1,447	R87,547
	October	2,739	1,714	1,328	87,940
	AVERAGE (10 months)	3,046	1,739	1,380	

*Total as of December 31.

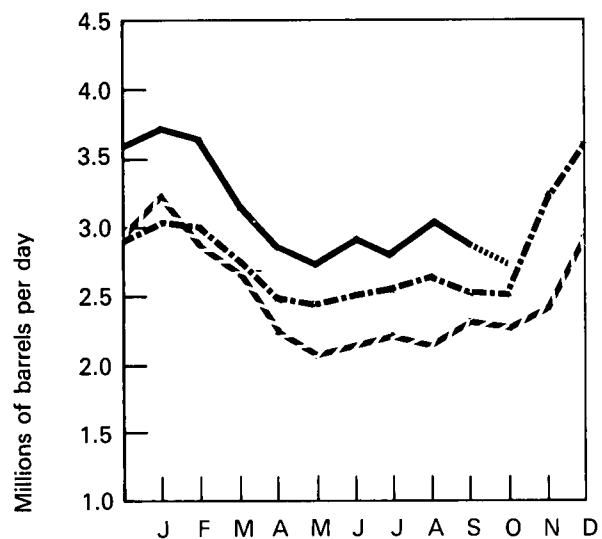
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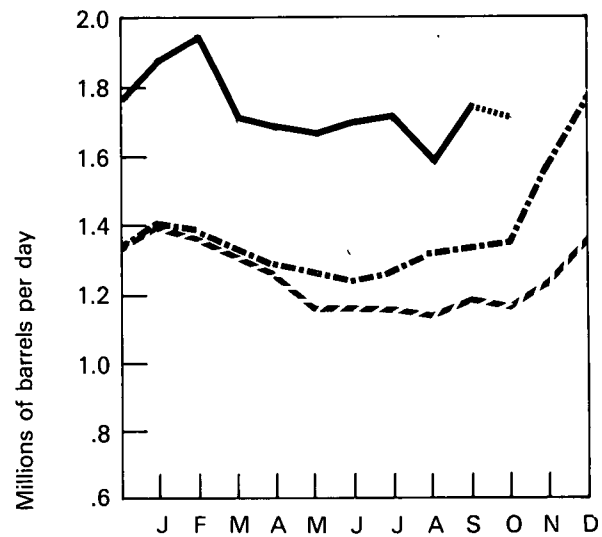
Sources: Bureau of Mines (BOM) *Mineral Industry Surveys*, "Petroleum Statement, Annual" and "Petroleum Statement, Monthly" through April 1977; Energy Information Administration (EIA) *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 and "Monthly Petroleum Statistics Report" for June through September 1977; October 1977 data are EIA estimates based on data from the American Petroleum Institute (API) "Weekly Statistical Bulletin."

Residual Fuel Oil

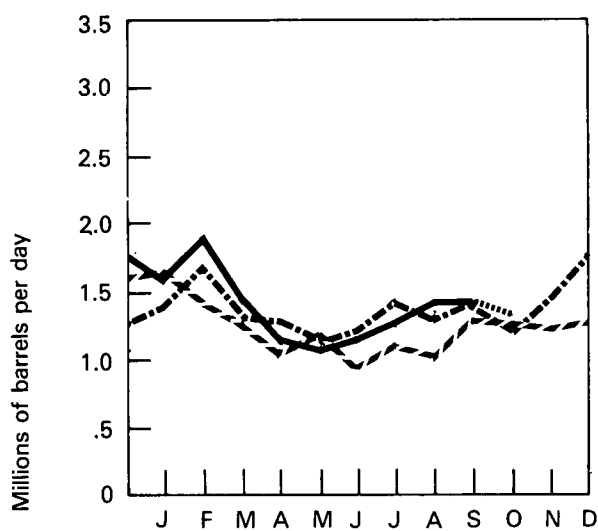
Domestic Demand



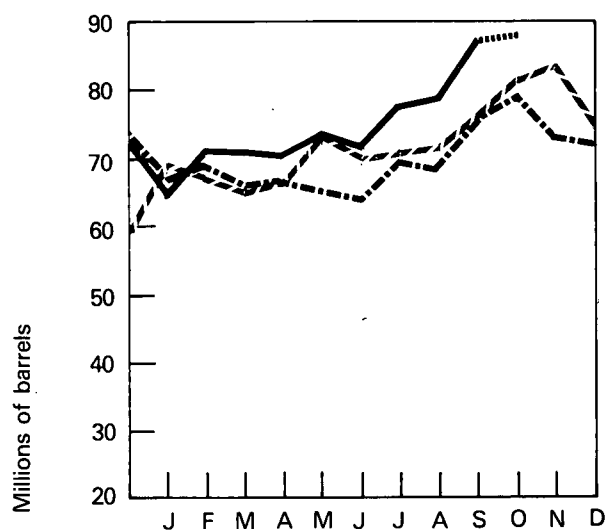
Production



Imports



Stocks



--- 1975 BOM
 -.- 1976 BOM
 — 1977 BOM, EIA
 1977 API

Natural Gas Liquids

		Domestic Demand*	Production*		Used at Refineries*	Imports	Stocks*
			At processing plants	At refineries			
Thousands of barrels per day							Thousands of barrels
1972	AVERAGE	1,420	1,744	365	826	174	**92,024
1973	AVERAGE	1,454	1,738	375	815	239	**106,659
1974	AVERAGE	1,422	1,688	338	746	212	**120,175
1975	January	1,708	1,630	307	756	257	110,697
	February	1,512	1,646	296	734	181	106,205
	March	1,404	1,658	280	731	178	104,365
	April	1,242	1,635	273	667	176	105,521
	May	1,002	1,607	299	628	97	119,052
	June	998	1,646	323	659	166	132,553
	July	1,191	1,621	336	701	173	139,095
	August	1,227	1,650	357	690	163	145,920
	September	1,278	1,577	326	703	209	148,948
	October	1,429	1,643	310	729	198	147,793
	November	1,444	1,635	309	759	196	145,052
	December	1,787	1,646	310	768	232	132,653
	AVERAGE	1,352	1,633	311	710	185	
1976	January	1,885	1,585	305	728	240	116,707
	February	1,518	1,640	316	793	270	113,373
	March	1,303	1,615	333	674	194	117,486
	April	1,201	1,616	349	716	171	123,100
	May	1,074	1,588	376	695	144	131,421
	June	1,110	1,606	356	718	163	139,291
	July	1,103	1,592	354	710	147	147,034
	August	1,213	1,596	362	695	160	152,704
	September	1,243	1,602	352	713	152	156,436
	October	1,497	1,601	309	709	203	152,666
	November	1,413	1,621	331	726	244	143,422
	December	1,921	1,589	341	853	269	124,518
	AVERAGE	1,407	1,604	340	725	196	
1977	January	2,018	1,549	323	730	331	106,524
	February	1,887	1,589	336	693	238	94,128
	March	1,354	1,687	331	688	239	100,025
	April	1,228	1,664	337	672	198	108,235
	May	1,167	1,620	397	614	165	120,018
	June	1,235	1,616	364	622	203	129,315
	AVERAGE (6 months)	1,478	1,621	348	670	229	

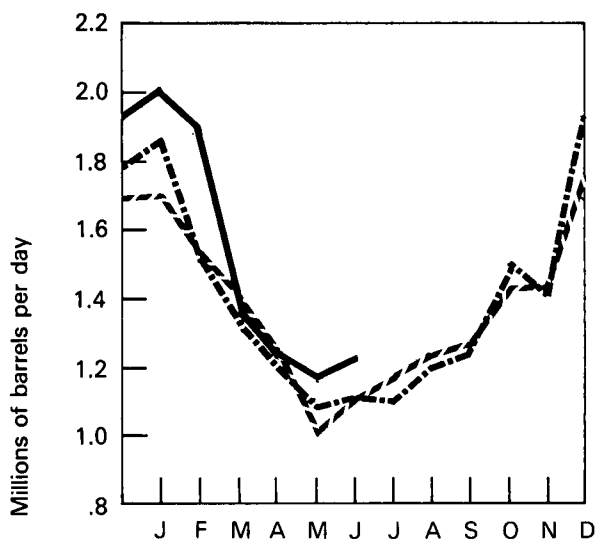
*See Explanatory Note 4.

**Total as of December 31.

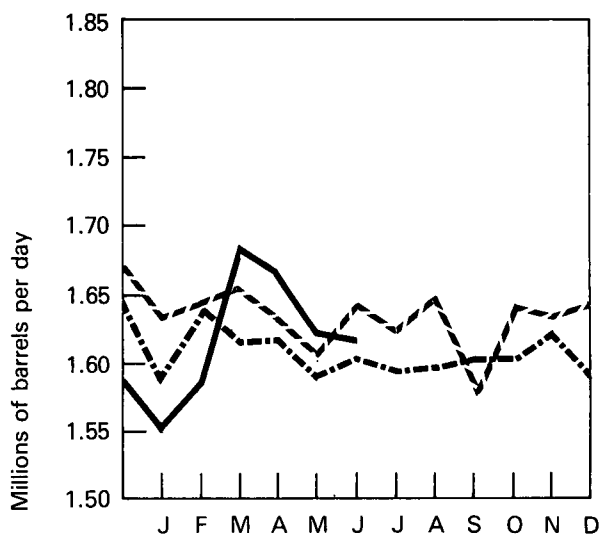
Source: Bureau of Mines *Mineral Industry Surveys*, "Petroleum Statement, Monthly" through April 1977; and EIA *Energy Data Reports*, "Petroleum Statement, Monthly" for May 1977 forward.

Natural Gas Liquids

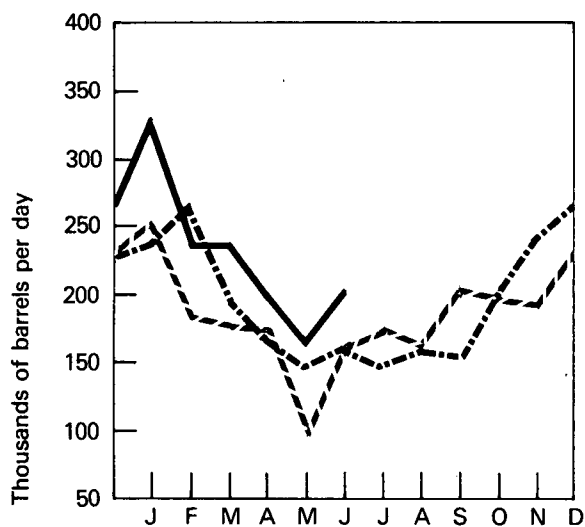
Domestic Demand



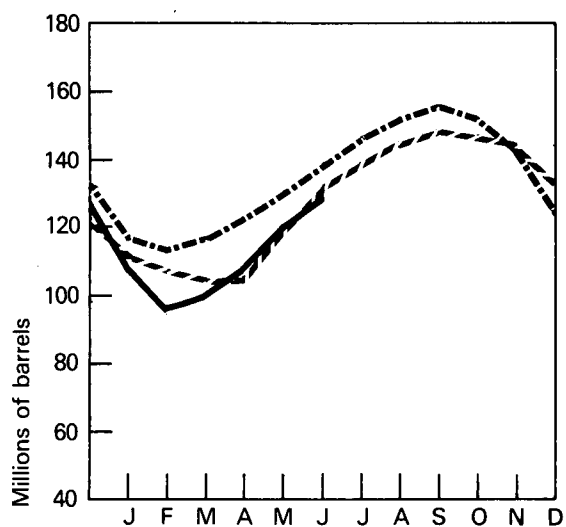
Production at Processing Plants



Imports



Stocks



--- 1975 BOM
 -.- 1976 BOM
 — 1977 BOM, EIA

U.S. Petroleum Supply and Demand

	1976 Actual				
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Year
	Thousands of barrels per day				
Supply					
Crude oil and lease condensate production	8,194	8,131	8,120	8,033	8,119
Natural gas plant liquids production	1,612	1,604	1,597	1,604	1,604
Other hydrocarbon supply	37	38	37	40	38
Crude oil imports	4,520	5,023	5,740	5,856	5,287
Refined products imports*	2,140	1,771	1,987	2,130	2,008
Total new supply	<u>16,503</u>	<u>16,567</u>	<u>17,481</u>	<u>17,663</u>	<u>17,056</u>
Processing gain	485	495	469	460	478
Stock change—all oils	-797	+363	+1,065	-866	-58
Total net supply	<u>17,785</u>	<u>16,699</u>	<u>16,885</u>	<u>18,989</u>	<u>17,592</u>
Unaccounted for crude oil**	+204	+8	+42	+101	+89
Demand					
Crude oil and refined products exports	192	204	220	274	223
Crude oil losses	14	14	15	15	14
Domestic demand for refined products***	<u>17,783</u>	<u>16,489</u>	<u>16,692</u>	<u>18,801</u>	<u>17,444</u>
Total demand	<u>17,989</u>	<u>16,707</u>	<u>16,927</u>	<u>19,090</u>	<u>17,681</u>

	1977				
	Actual			Forecast†	
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Year††
Thousands of barrels per day					
Supply					
Crude oil and lease condensate production	7,956	7,995	8,269	8,988	8,305
Natural gas plant liquids production	1,609	1,605	1,641	1,541	1,599
Other hydrocarbon supply	44	55	56	36	48
Crude oil imports	6,520	6,849	6,502	5,635	6,374
Refined products imports*	<u>2,813</u>	<u>1,795</u>	<u>1,993</u>	<u>2,504</u>	<u>2,275</u>
Total new supply	<u>18,942</u>	<u>18,299</u>	<u>18,461</u>	<u>18,704</u>	<u>18,601</u>
Processing gain	520	473	532	518	511
Stock change—all oils	<u>-278</u>	<u>+1,165</u>	<u>+1,125</u>	<u>-165</u>	<u>+464</u>
Total net supply	<u>19,740</u>	<u>17,607</u>	<u>17,868</u>	<u>19,387</u>	<u>18,648</u>
Unaccounted for crude oil**	+114	+206	+48	0	+91
Demand					
Crude oil and refined products exports	210	256	198	195	215
Crude oil losses	15	16	13	13	14
Domestic demand for refined products***	<u>19,629</u>	<u>17,541</u>	<u>17,705</u>	<u>19,179</u>	<u>18,510</u>
Total demand	<u>19,854</u>	<u>17,813</u>	<u>17,916</u>	<u>19,387</u>	<u>18,739</u>

*Includes plant condensate and unfinished oils.

**Balancing item resulting from statistical inconsistencies.

***Includes international bunkers.

†See Explanatory Note 5 for discussion of basic assumptions for forecast.

††Calculated using actual 1st, 2nd, and 3rd Quarter data and EIA forecast for remainder of year.

Sources: 1976—Bureau of Mines (BOM) *Mineral Industry Surveys*, "PAD Districts Supply/Demand;" 1st Quarter 1977—BOM *Mineral Industry Surveys*, "Petroleum Statement, Monthly;" 2nd and 3rd Quarters 1977—BOM *Mineral Industry Surveys*, "Petroleum Statement, Monthly;" EIA "Monthly Petroleum Statistics Report," and EIA estimates; 4th Quarter 1977—EIA forecast.

Strategic Petroleum Reserve

		Crude Oil Shipments Received	Average Cost per Barrel*	Total Crude Oil in Storage at End of Month
		Barrels	Dollars	Barrels
1977	July	414,172	13.565	414,172
	August	None	—	414,172
	September	674,961	13.59	1,089,133
	October	R1,539,263	R14.22	R2,628,396
	November	2,434,463	14.50	5,062,859
	DEC			
TOTAL		5,062,859	14.21	

*Includes transportation costs.

Source: U.S. Department of Energy, Strategic Petroleum Reserve Office.

Natural Gas

Marketed production of natural gas in October was estimated to be 1.2 percent below production in October 1976, but for the first 10 months of 1977, was estimated to be 0.3 percent above the output for the same period of 1976.

Imports of natural gas in October were estimated to be down 1.2 percent from the October 1976 level. Imports during the first 10 months of 1977, however, were estimated to be 3.3 percent greater than the amount imported during the comparable 1976 period.

Domestic producer sales of natural gas to major interstate pipeline companies in July were 2.6 percent below those for July 1976. Sales during the first 7 months of 1977 were 2.8 percent below the level for the January-July period of 1976.

Total natural gas in underground storage reservoirs at the end of October 1977 was 6.30 trillion cubic feet, 4.5 percent higher than the volume a year earlier.*Net injections of natural gas into underground storage reservoirs in October totaled 116 billion cubic feet, compared to only 9 billion cubic feet in October 1976. Working gas** in storage at the end of the month was 2.93 trillion cubic feet, 8.4 percent above the volume at the end of October 1976.

*See footnotes, page 28.

**Gas available for withdrawal.

Natural Gas

		Domestic Consumption*	Marketed Production*	Domestic Producer Sales to Major Interstate Pipelines	Imports
Billion cubic feet					
1972	TOTAL	22,102	22,532	12,429	1,019
1973	TOTAL	22,049	22,648	12,067	1,033
1974	TOTAL	21,223	21,601	11,462	959
1975	January	2,248	1,778	950	81
	February	1,939	1,640	867	75
	March	1,903	1,740	948	83
	April	1,575	1,677	906	82
	May	1,331	1,689	898	80
	June	1,257	1,634	859	76
	July	1,313	1,677	873	80
	August	1,369	1,677	882	75
	September	1,370	1,603	836	74
	October	1,544	1,646	877	80
	November	1,640	1,618	853	81
	December	2,049	1,730	903	86
	TOTAL	19,538	20,109	10,652	953
1976	January	2,286	1,751	894	84
	February	1,934	1,647	850	78
	March	1,716	1,714	894	85
	April	1,504	1,623	849	86
	May	1,430	1,673	860	82
	June	1,330	1,640	815	76
	July	1,368	1,676	822	73
	August	1,312	1,636	810	77
	September	1,297	1,565	793	74
	October	1,617	1,639	840	85
	November	1,870	1,635	841	81
	December	2,227	1,753	872	83
	TOTAL	19,891	19,952 20.0	10,140	964
1977	January	2,394	1,742	848	85
	February	1,796	1,671	807	85
	March	1,695	1,744	910	106
	April	1,411	1,637	830	82
	May	1,358	1,694	830	84
	June	R1,314	1,646	789	R76
	July	R1,314	R1,679	801	R74
	August	R1,348	R1,647	NA	**77
	September	1,360	R**1,530	NA	**75
	October	1,490	**1,620	NA	**84
	TOTAL	15,480	16,610	5,815	828
	(10 months)			(7 months)	

19496

(4215)

*See Explanatory Note 6.

**Preliminary data.

R=Revised data.

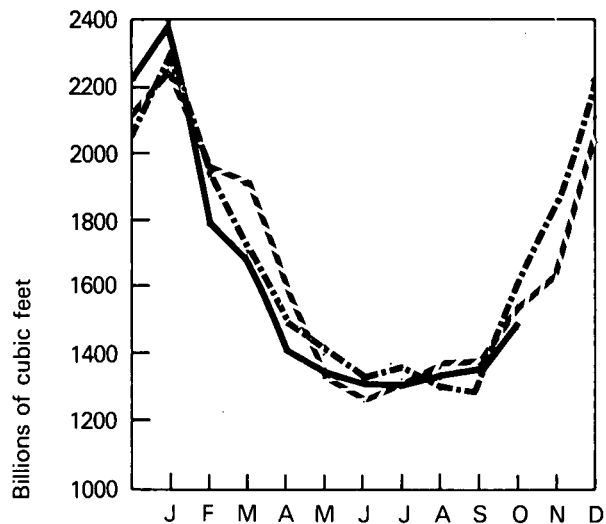
NA=Not available.

Note: All monthly Domestic Consumption data are estimated.

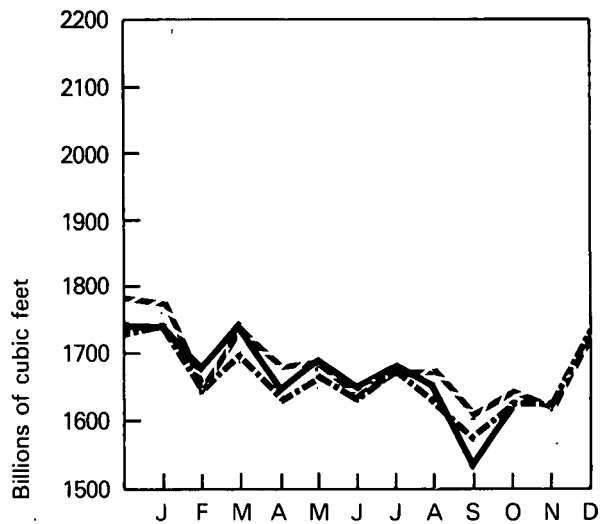
Sources: Domestic Consumption—Bureau of Mines, "Minerals and Materials/A Monthly Survey" (advance estimates are subject to revision prior to publication by BOM); Marketed Production and Imports—Bureau of Mines *Mineral Industry Surveys*, "Natural Gas, Monthly" through June 1977 and EIA *Energy Data Reports*, "Natural Gas, Monthly" for July 1977 forward; Domestic Producer Sales—Federal Power Commission Form 11, "Monthly Statement of Gas Operating Revenues, Sales."

Natural Gas

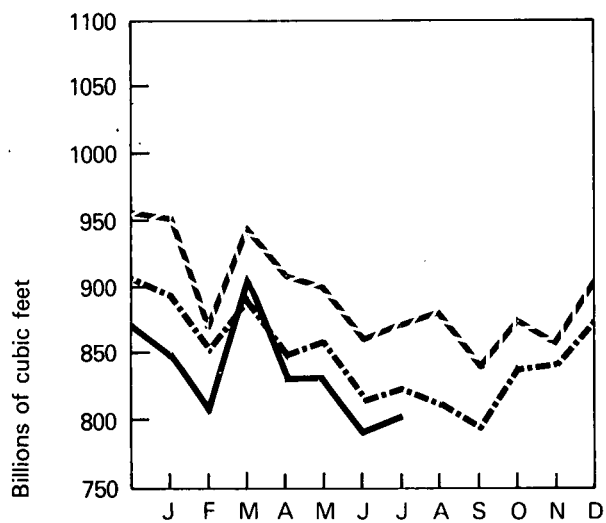
Domestic Consumption



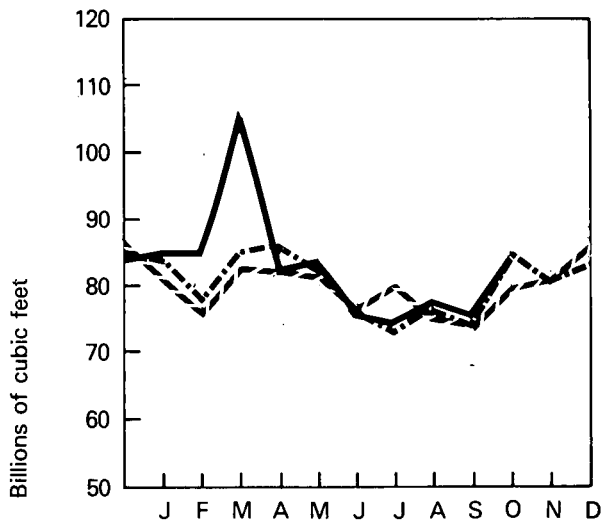
Marketed Production



Domestic Producer Sales to Major Interstate Pipelines



Imports



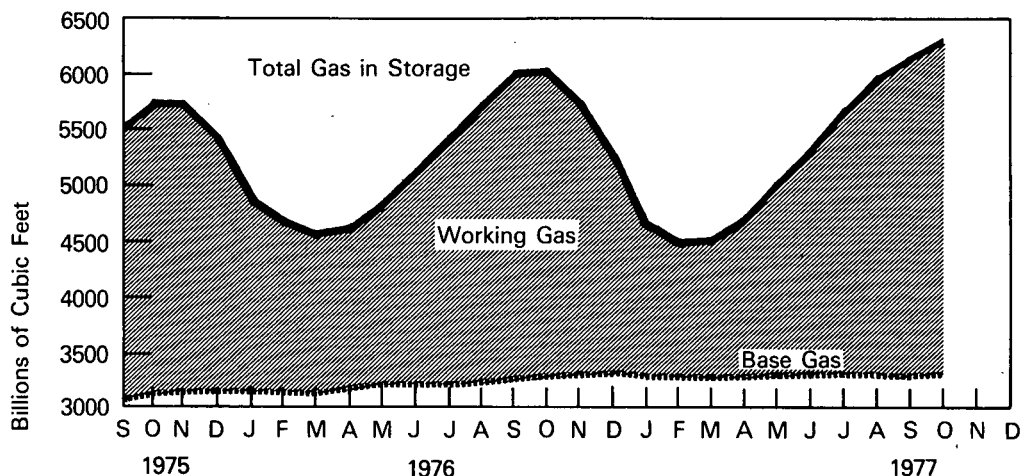
--- 1975
 --- 1976
 --- 1977

Natural Gas (Continued)

Natural Gas in Underground Storage*

		Total Gas in Storage	Base Gas	Working Gas	Storage Injections	Storage Withdrawals	Net Storage Injections
Billion cubic feet							
1974	October**	5,445	3,042	2,403	***	***	***
1975	September	5,558	3,084	2,474	225	31	193
	October	5,770	3,128	2,642	248	94	154
	November	5,760	3,172	2,588	99	150	-51
	December	5,423	3,173	2,250	35	375	-340
1976	January	4,868	3,194	1,674	22	574	-552
	February	4,660	3,197	1,463	67	275	-208
	March	4,543	3,195	1,348	81	199	-118
	April	4,650	3,208	1,443	176	70	106
	May	4,878	3,214	1,664	262	34	228
	June	5,163	3,220	1,943	312	27	285
	July	5,476	3,244	2,232	311	11	300
	August	5,759	3,272	2,487	295	13	282
	September	6,021	3,317	2,704	267	21	246
	October	6,030	3,327	2,703	132	123	9
	November	5,779	3,330	2,449	41	298	-257
	December	5,284	3,334	1,950	23	518	-495
1977	January	4,621	3,317	1,304	17	681	-664
	February	4,490	3,307	1,183	104	234	-130
	March	4,544	3,310	1,234	190	137	53
	April	4,755	3,311	1,444	256	45	211
	May	5,074	3,317	1,757	338	18	320
	June	5,386	3,324	2,062	322	10	312
	July	5,728	3,342	2,386	355	15	340
	August	6,015	3,371	2,644	298	20	278
	September	6,165	3,354	2,811	252	20	232
	October	6,302	3,372	2,930	170	54	116

Gas in Storage



*See Explanatory Note 7.

**Data reported as of November 1, 1974.

***Between November 1, 1974, and August 31, 1975, a total of 1,658 billion cubic feet of gas was injected into storage and 1,686 billion cubic feet was withdrawn, for net storage injections of -28 billion cubic feet.

Note: Underground storage data for months preceding September 1977 differ slightly from those presented in EIA's *Winter Energy Data Bulletin* because data for one storage field was reported by two respondents for all report periods prior to September 1977; partial data was reported for the field in September. Revisions to these data will be made in a future issue of the *Monthly Energy Review*.

Sources: Federal Energy Administration Form G318-M-O and Federal Power Commission Form 8 "Underground Gas Storage Report."

Coal

Bituminous coal and lignite production declined slightly from 65.5 million tons in September 1977 to 64.4 million tons in October. Weekly coal production continued at near record levels throughout most of October; and for the week ending November 5, 1977, production totaled 16.2 million tons, surpassing all previous levels. Coal production from January 1 through the end of October was 574.3 million tons, an increase of 4.2 percent from the output for the comparable period in 1976. This increase occurred despite extreme cold weather in January and February and wildcat strikes in July and August.

Domestic consumption of bituminous coal and lignite totaled 51.3 million tons in September, up 3.5 million tons and 7.3 million tons from consumption in September 1976 and 1975, respectively. The increases are due primarily to steadily increasing demand for coal by electric utilities. Utility coal consumption was 40.0 million tons in September 1977 compared with 35.8 million tons in September 1976. The second largest coal consuming sector, steel company coke plants, consumed 5.8 million tons of coal in September 1977. The remaining 5.5 million tons were consumed by general industry and retail dealers.

Stocks of bituminous coal and lignite on September 30, 1977, were 145.0 million tons, or 85 days' supply at current burn rates, up 15.1 million tons from the level for the same month last year. Electric utilities have steadily increased their stockpiles from a yearly low of 101.1 million tons at the end of February 1977 to an alltime record high of 127.7 million tons at the end of September. The inventory buildup is in anticipation of further production disruptions when the United Mine Workers of America contract expires on December 6, 1977. Stocks of coking coal were 10.4 million tons at the end of September, or 54 days. Coal stocks held by general industry (nonutility, noncoke) were 6.4 million tons, or 39 days' supply.

The United States exported 5.0 million tons of coal in September, up 0.7 million tons from exports in August. Exports for the first

9 months of 1977 were 40.4 million tons, 7.0 percent below the amount exported during the same period a year earlier, and 17.0 percent below the amount for the January-September period of 1975.

Bituminous and Lignite

		Domestic Consumption*	Production*	Exports	Stocks**
			Thousands of short tons		
1972	TOTAL	516,776	595,386	55,997	117,442
1973	TOTAL	556,022	591,738	52,903	103,022
1974	TOTAL	552,709	603,406	59,926	95,528
1975	January	49,841	55,610	4,254	95,512
	February	45,699	51,135	4,470	97,028
	March	47,202	51,910	5,653	97,832
	April	43,537	56,330	6,159	102,663
	May	42,658	57,045	7,011	109,666
	June	44,777	55,730	6,269	114,857
	July	47,454	45,560	4,691	109,133
	August	49,190	51,160	5,859	108,522
	September	44,032	56,060	4,529	111,922
	October	44,929	60,030	4,647	120,344
	November	45,946	54,655	7,593	125,808
	December	51,036	53,213	4,534	127,115
	TOTAL	556,301	648,438	65,669	
1976	January	52,919	51,501	3,697	119,149
	February	46,800	52,636	3,050	118,970
	March	48,607	60,056	3,979	123,441
	April	46,450	57,856	5,780	128,343
	May	46,506	56,611	5,667	134,621
	June	48,472	58,436	6,569	140,237
	July	51,696	43,250	4,880	129,606
	August	52,069	53,440	4,223	123,662
	September	47,750	59,675	5,614	129,867
	October	49,248	57,498	5,871	133,581
	November	51,320	56,995	5,451	135,402
	December	55,642	57,046	4,625	133,673
	TOTAL	597,479	665,000	59,406	
1977	January	57,032	44,555	2,143	118,080
	February	50,756	50,365	3,079	114,387
	March	50,238	65,020	3,390	122,584
	April	46,888	58,893	5,637	129,830
	May	50,015	60,799	5,673	137,518
	June	52,275	61,078	6,019	144,269
	July	57,288	47,785	5,158	137,463
	August	R55,627	55,920	4,279	R136,832
	September	51,342	65,505	5,037	144,953
	October	NA	64,415	NA	NA
	TOTAL	471,461 (9 months)	574,335 (10 months)	40,415 (9 months)	

*See Explanatory Note 8.

**Total at the end of year or month.

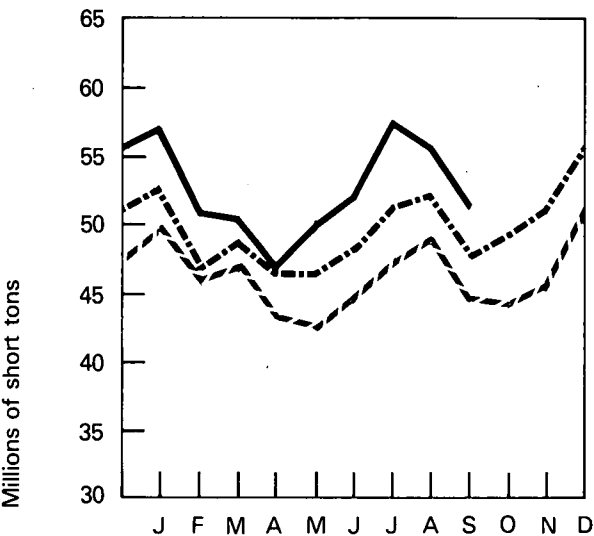
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NA=Not available.

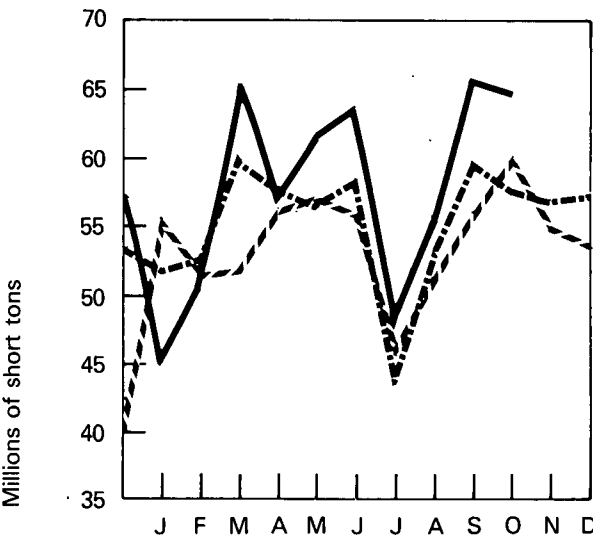
Source: Bureau of Mines *Mineral Industry Surveys*, "Weekly Coal Report" through September 1977; and EIA *Energy Data Reports*, "Weekly Coal Report" for October 1977 forward.

Bituminous and Lignite

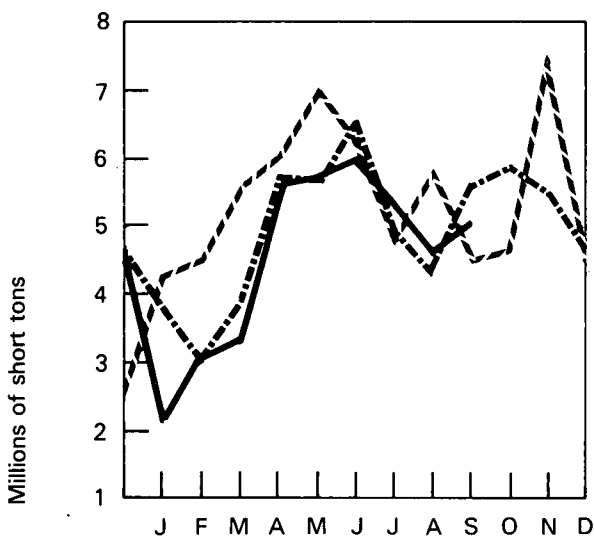
Domestic Consumption



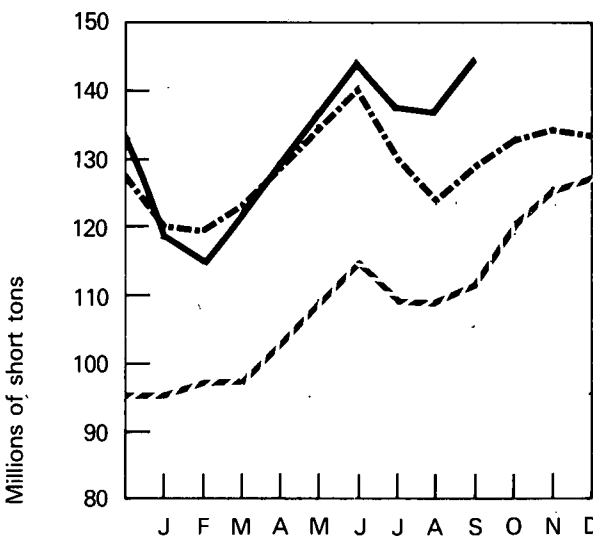
Production



Exports



Stocks

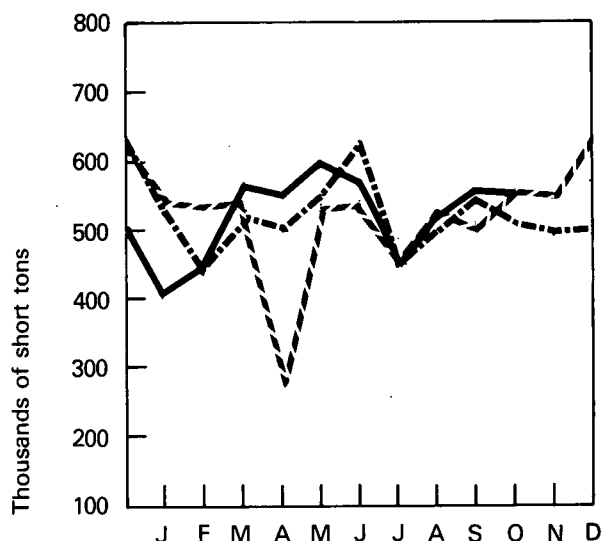


--- 1975
--- 1976
— 1977

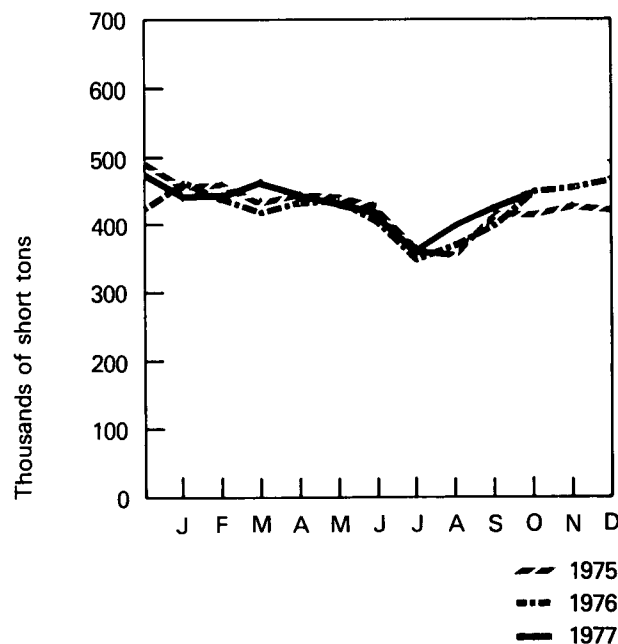
Anthracite

		Production	Apparent Domestic Consumption
		Thousands of short tons	
1972	TOTAL	7,106	5,915
1973	TOTAL	6,830	5,671
1974	TOTAL	6,617	5,448
1975	January	540	459
	February	535	465
	March	544	435
	April	270	450
	May	535	445
	June	544	430
	July	455	360
	August	535	356
	September	500	425
	October	560	420
	November	555	435
	December	630	428
	TOTAL	6,203	5,108
1976	January	530	460
	February	440	430
	March	530	420
	April	500	435
	May	555	440
	June	630	400
	July	450	350
	August	500	375
	September	550	400
	October	510	455
	November	500	460
	December	505	475
	TOTAL	6,200	5,100
1977	January	400	440
	February	450	450
	March	570	470
	April	550	450
	May	600	440
	June	570	420
	July	450	360
	August	525	400
	September	560	430
	October	555	450
	TOTAL (10 months)	5,230	4,310

Production



Apparent Domestic Consumption



Source: Bureau of Mines *Mineral Industry Surveys*, "Weekly Coal Report" through September 1977; and EIA *Energy Data Reports*, "Weekly Coal Report" for October 1977 forward.

Electric Utilities

Production

September 1977 production of electricity by utilities was 176.0 billion kilowatt hours, 6.7 percent above the level for September 1976. Total production during the first 9 months of 1977 was 1.6 trillion kilowatt hours, 5.5 percent above production for the same period in 1976. October 1977 utility electricity production is preliminarily estimated at 169.3 billion kilowatt hours.*

Consumption

Electric utility consumption of coal, oil, and natural gas during September 1977 was 40.2 million tons, 46.1 million barrels, and 324.3 billion cubic feet, respectively, representing increases of 11.9, 13.0, and 9.9 percent over the levels during the same month in 1976. During the first 9 months of 1977, consumption of coal, oil, and gas was 8.3, 20.4, and 21.3 percent higher, respectively, than during the same period of 1976. In October 1977, electric utilities consumed an estimated 38.7 million tons of coal, 40.3 million barrels of oil, and 300.0 billion cubic feet of gas.

Stocks

In anticipation of a strike by the United Mine Workers of America when their contract expires in December, stocks at coal-fired plants on September 30, 1977, reached 128.8 million tons, which constitutes the largest end-of-month stockpile on record. Oil stocks were also a record high of 142.2 million barrels on September 30, representing an increase of 9.4 percent over the level for the same period of 1976.

Sales

Sales of electricity to ultimate industrial customers during June 1977 totaled 66.1 billion kilowatt hours, 5.5 percent above the level for June 1976. Sales to ultimate residential customers rose 9.8 percent to 48.4 billion kilowatt hours; sales to ultimate commercial customers totaled 37.6 billion

kilowatt hours, up 6.4 percent from the level 1 year earlier.

The primary causes of the increase in ultimate industrial sales of electricity are a 6.3-percent increase in industrial production** coupled with a 3.4-percent growth in the number of industrial customers reported by Class A and B utilities.*** The sharp increase in ultimate residential sales is largely due to a 2.1-percent rise in the number of residential electricity customers. A major factor affecting the growth in ultimate commercial sales was a 2.1-percent increase in the number of commercial electricity customers.

*Based on Form 4 reports received by EIA for 79.34 percent of the total current capacity; data for the remaining units are estimated based on the previous month's reports.

**Industrial production is based upon information obtained from the Federal Reserve Bulletin.

***See Explanatory Note 9.

Electric Utilities

		Total Net Production	Percentage Produced from Each Source					
		Millions of kilowatt hours	Coal	Oil	Gas	Nuclear	Hydro- electric	Other*
1972	TOTAL	1,749,629	AVG. 44.2	15.6	21.4	3.1	15.6	0.1
1973	TOTAL	1,860,440	AVG. 45.7	16.8	18.3	4.5	14.6	0.1
1974	TOTAL	1,867,103	AVG. 44.5	16.0	17.2	6.1	16.1	0.1
1975	January	164,325	45.6	18.6	12.0	8.5	15.2	0.1
	February	147,080	45.8	16.9	12.3	8.7	16.2	0.1
	March	155,481	44.5	14.9	12.9	9.6	18.0	0.1
	April	146,217	44.1	14.5	13.9	9.1	18.2	0.2
	May	153,231	42.2	13.7	16.8	9.0	18.1	0.2
	June	162,442	43.3	14.2	17.8	7.8	16.7	0.2
	July	176,815	43.2	14.2	19.3	8.7	14.4	0.2
	August	179,714	43.9	15.6	18.9	8.8	12.6	0.2
	September	155,223	44.2	13.8	19.3	9.3	13.2	0.2
	October	154,944	44.6	14.2	17.0	9.4	14.6	0.2
	November	152,794	46.1	14.1	14.3	9.3	16.0	0.2
	December	169,372	46.5	15.9	12.2	9.9	15.3	0.2
	TOTAL	1,917,638	AVG. 44.5	15.1	15.6	9.0	15.6	0.2
1976	January	R178,329	46.9	18.1	11.2	9.0	14.6	0.2
	February	R156,684	46.9	15.8	12.2	9.2	15.7	0.2
	March	R164,174	46.6	15.5	13.0	8.5	16.2	0.2
	April	R153,167	47.4	15.2	14.3	7.2	15.7	0.2
	May	R157,370	46.1	13.8	16.1	7.6	16.2	0.2
	June	R173,392	44.4	14.5	17.1	9.1	14.7	0.2
	July	R186,433	44.7	14.5	17.1	9.5	14.0	0.2
	August	R186,402	45.2	15.2	16.8	9.8	12.8	0.2
	September	R165,026	45.7	14.3	17.0	10.5	12.3	0.2
	October	R163,729	47.0	14.8	14.6	10.6	12.8	0.2
	November	R169,076	48.3	17.8	12.5	9.5	11.7	0.2
	December	R183,871	47.4	18.6	11.3	11.5	11.0	0.2
	TOTAL	R2,037,653	AVG. 46.4	15.7	14.4	9.4	13.9	0.2
1977	January	R196,324	45.8	22.1	10.2	11.3	10.5	0.2
	February	R162,724	48.4	18.1	12.0	12.0	9.3	0.2
	March	R169,131	45.9	16.7	13.3	12.2	11.7	0.2
	April	R156,852	45.2	16.5	13.6	12.6	11.9	0.2
	May	R169,179	45.5	16.5	14.6	12.1	11.1	0.2
	June	R180,512	46.0	16.0	16.4	11.8	9.6	0.2
	July	R198,784	46.5	17.4	16.4	11.0	8.5	0.2
	August	R195,751	46.3	16.5	17.0	11.6	8.4	0.2
	September	R176,035	47.0	15.0	17.6	11.1	9.1	0.2
	October**	169,268	47.3	13.7	17.1	11.4	10.3	0.2
	TOTAL (10 months)	1,774,560						

(See chart on page 37)

*Includes electricity produced from geothermal power, wood, and waste.

**Based on Form 4 reports received by EIA for 79.34 percent of the total current capacity; data for remaining units are estimated based on the previous month's reports.

Source: Federal Power Commission Form 4, "Monthly Powerplant Report."

Electric Utilities (Continued)

Fuel Consumption

		Coal	Oil			Gas	
		Thousands of short tons	Steam*	Gas Turbine/ Internal Combustion**	Total	Millions of cubic feet	
Thousands of barrels							
1972	TOTAL	352,392	440,229	53,463	493,692	3,976,770	
1973	TOTAL	389,707	513,127	47,020	560,147	3,659,388	
1974	TOTAL	392,423	482,524	53,721	536,245	3,443,293	
1975	January	35,843	48,678	5,370	54,048	205,096	
	February	32,097	39,794	3,750	43,544	188,922	
	March	32,793	37,408	3,007	40,415	211,184	
	April	30,547	34,702	2,335	37,037	214,250	
	May	30,574	33,720	3,266	36,986	275,097	
	June	33,456	36,825	4,118	40,943	307,901	
	July	36,567	40,520	3,893	44,413	362,088	
	August	37,967	44,565	4,755	49,320	360,199	
	September	32,609	35,124	1,917	37,041	315,877	
	October	32,853	36,137	1,893	38,030	275,266	
	November	33,333	35,743	1,794	37,537	227,748	
	December	37,390	43,724	3,090	46,814	213,957	
	TOTAL	406,029	466,940	39,188	506,128	3,157,585	
1976	January	39,986	51,114	R4,973	R56,087	R206,528	
	February	34,965	40,452	R2,676	R43,128	R199,441	
	March	36,099	41,154	R2,800	R43,955	R222,763	
	April	33,805	37,663	R2,488	R40,151	R227,825	
	May	33,944	35,651	R2,220	R37,871	R266,631	
	June	36,381	40,065	R3,574	R43,638	R313,367	
	July	39,841	43,143	R4,083	R47,227	R337,634	
	August	R40,330	R45,627	R3,443	R49,069	R329,731	
	September	35,894	38,245	R2,524	R40,769	R294,980	
	October	36,775	39,095	R3,104	R42,199	R249,956	
	November	38,837	47,340	R4,969	R52,309	R217,143	
	December	41,575	R53,941	R5,556	R59,497	R214,615	
	TOTAL	R448,432	R513,490	R42,410	R555,900	R3,080,615	
1977	January	43,254	R66,250	9,645	R75,895	205,067	
	February	37,644	R47,605	3,205	R50,810	R200,361	
	March	37,283	R46,069	2,595	R48,664	231,520	
	April	33,981	R42,137	2,293	R44,430	R223,315	
	May	R37,156	R44,714	R3,907	R48,621	R259,554	
	June	R40,148	R46,113	R4,407	R50,520	R310,399	
	July	R44,973	R54,527	R7,885	R62,412	R346,909	
	August	R44,090	R51,765	R4,794	R56,559	R348,465	
	September	40,153	43,572	2,510	46,082	324,319	
	October***	38,719	38,394	1,934	40,328	299,991	
	TOTAL (10 months)	397,401	481,146	43,175	524,321	2,749,900	

*Primarily residual fuel oil.

**Primarily middle distillates.

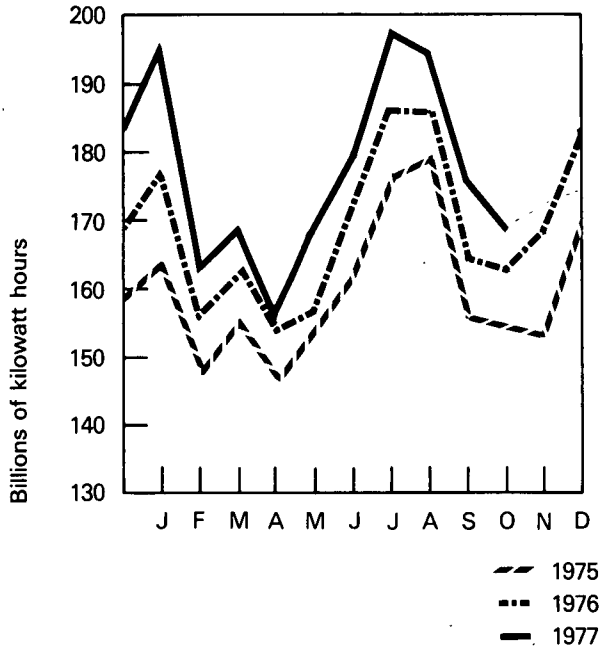
***Based on Form 4 reports received by EIA for 79.34 percent of the total current capacity; data for remaining units are estimated based on the previous month's reports.

R=Revised.

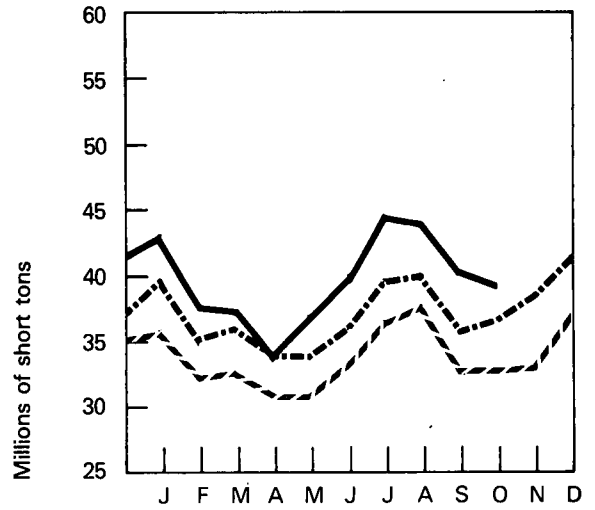
Source: Federal Power Commission. Form 4, "Monthly Powerplant Report."

Electric Utilities

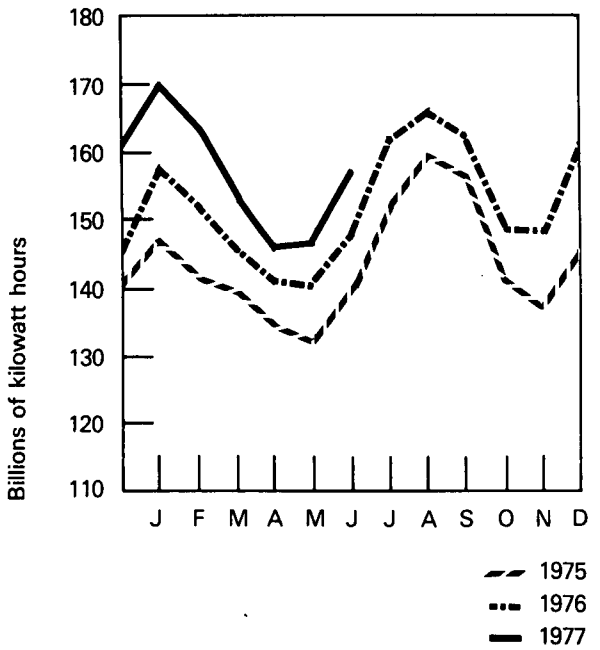
Total Net Electricity Production



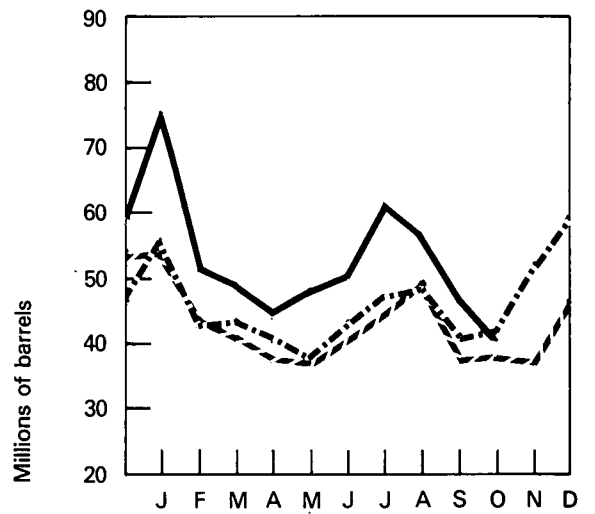
Coal Consumption



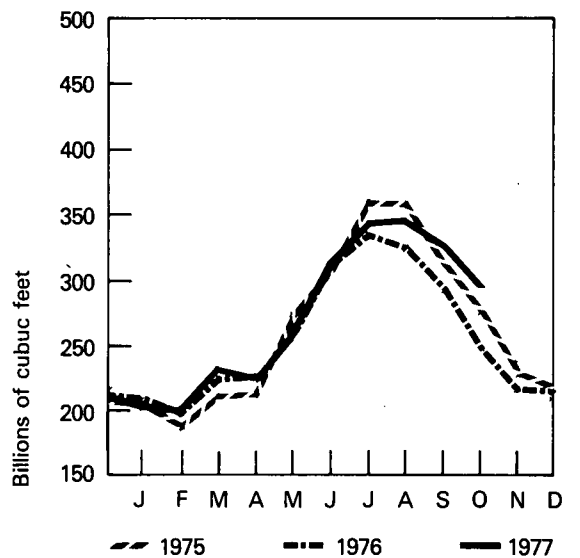
Total Electricity Sales



Oil Consumption



Gas Consumption



Electric Utilities (Continued)

Stocks at End of Month

		Coal	Oil		
			Steam*	Gas Turbine/ Internal Combustion**	Total
		Thousands of short tons	Thousands of barrels		
1972		***100,009	***52,575	***5,079	***57,654
1973		***87,279	***79,121	***10,095	***89,216
1974		***83,542	***97,201	***15,715	***112,916
1975	January	82,088	95,579	15,716	111,295
	February	80,972	95,762	15,738	111,500
	March	81,885	97,333	16,310	113,643
	April	86,829	98,004	16,294	114,298
	May	93,869	101,464	15,767	117,231
	June	98,031	103,222	15,714	118,936
	July	94,278	105,334	15,905	121,239
	August	94,213	104,926	15,739	120,665
	September	98,096	109,678	16,635	126,313
	October	105,415	112,107	16,774	128,881
	November	110,313	113,231	17,110	130,341
	December	110,750	108,358	16,886	125,244
1976	January	105,518	102,023	15,922	117,945
	February	104,874	102,147	R16,706	R118,853
	March	108,450	104,072	16,466	120,538
	April	112,862	103,747	R16,641	R120,388
	May	119,611	109,132	16,961	R126,093
	June	123,048	109,649	R16,620	R126,269
	July	115,204	110,818	R15,861	126,679
	August	110,752	109,812	R15,994	R125,806
	September	115,399	112,955	R17,043	129,997
	October	118,566	114,426	R16,937	R131,363
	November	119,298	111,127	R15,500	R126,627
	December	117,468	106,730	R14,957	R121,687
1977	January	104,839	R89,873	R12,965	R102,838
	February	R101,918	R95,633	14,387	R110,020
	March	R108,282	R96,695	R15,773	R112,468
	April	114,585	R101,287	R16,097	R117,384
	May	121,487	R103,569	R16,096	R119,665
	June	127,452	R107,361	R15,761	R123,122
	July	R122,091	R112,705	R16,312	R129,017
	August	R122,325	R118,660	R17,190	R135,850
	September	128,765	124,496	17,663	142,159

*Primarily residual fuel oil.

**Primarily middle distillates.

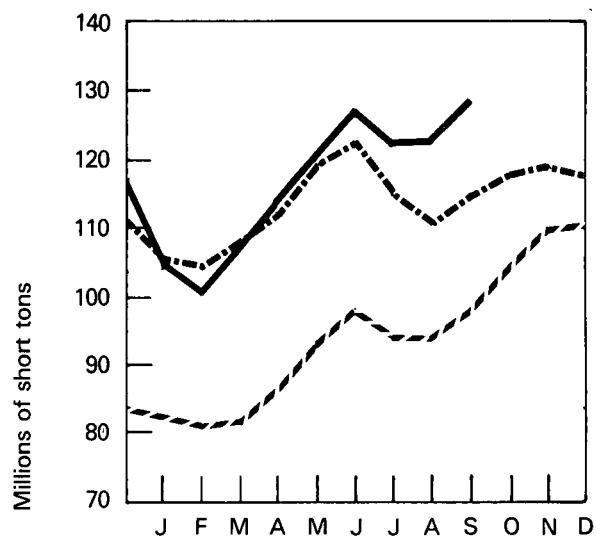
***As of December 31.

R=Revised.

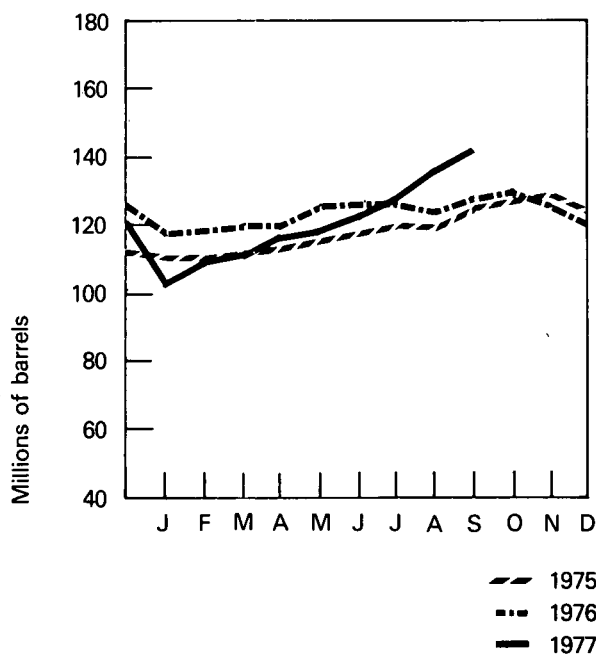
Source: Federal Power Commission Form 4, "Monthly Powerplant Report."

Electric Utilities

Coal Stocks



Oil Stocks



Electric Utilities (Continued)

Electricity Sales*

		Residential	Commercial	Industrial	Other**	Total
		Millions of kilowatt hours				
1972	TOTAL	538,609	359,265	640,978	56,309	1,595,161
1973	TOTAL	579,231	388,266	686,085	59,326	1,712,909
1974	TOTAL	578,184	384,826	684,875	58,039	1,705,924
1975	January	54,003	32,405	55,505	5,954	147,867
	February	50,219	31,459	54,328	5,544	141,550
	March	47,968	31,194	54,437	5,639	139,238
	April	44,762	30,473	53,910	5,269	134,414
	May	41,077	30,926	54,767	5,404	132,174
	June	45,766	35,210	55,369	5,384	141,729
	July	53,972	37,631	55,524	5,644	152,771
	August	57,291	38,576	57,868	5,709	159,444
	September	54,362	37,325	58,619	5,978	156,284
	October	43,024	32,817	58,815	5,745	140,401
	November	42,054	31,608	58,223	5,976	137,861
	December	50,213	32,596	57,433	5,907	146,149
	TOTAL	584,711	402,220	674,798	68,153	1,729,882
1976	January	60,126	34,955	57,463	6,359	158,903
	February	54,264	33,809	58,064	5,855	151,992
	March	47,041	32,520	60,322	5,967	145,850
	April	43,563	31,813	59,967	5,386	140,729
	May	41,044	32,538	61,133	5,473	140,188
	June	R44,131	R35,325	R62,654	R5,371	R147,481
	July	53,671	39,025	62,657	5,870	161,223
	August	57,256	39,517	64,184	5,835	166,792
	September	53,460	38,503	64,653	6,134	162,750
	October	44,762	34,388	64,208	5,420	148,778
	November	46,674	33,372	63,106	5,606	148,758
	December	56,750	35,579	62,842	5,626	160,797
	TOTAL	R602,742	R421,344	R741,253	R68,902	R1,834,241
1977	January	65,280	37,362	61,638	6,006	170,286
	February	61,492	35,969	60,687	5,549	163,697
	March	50,374	33,660	63,275	5,748	153,057
	April	44,564	33,051	63,583	5,078	146,276
	May	41,497	34,111	65,559	5,240	146,407
	June	R49,438	R37,601	R66,073	R5,595	R157,707
	TOTAL (6 months)	R312,645	R211,754	R380,815	R33,216	R937,430

(See chart on page 37)

*Electricity sales to ultimate consumers.

**Includes street lighting and trolley cars.

R=Revised.

Source: Federal Power Commission Form 5, "Monthly Statement of Electric Operating Revenue and Income."

Nuclear Power

The 61 domestic reactors in commercial operation, with a maximum dependable capacity of 43,135 megawatts, performed at 58 percent of capacity during October, down from 62 percent in September. Thirteen reactors were out of service for major portions of the month for refueling, and 10 were undergoing equipment repairs or maintenance in preparation for the high demands for electric power during the winter heating season.

Nuclear powerplants provided 11.4 percent of the Nation's total electricity generation for October. (This figure includes three reactors in startup testing* and the Department of Energy's Hanford-N and EBR-II reactors.) During the third quarter of 1977, the nuclear powerplant network generated 63.6 billion net kilowatt hours, up 18 percent from the generation for the corresponding quarter of 1976. For the first 9 months of 1977, nuclear power generation was 37 percent and 48 percent higher than for the corresponding periods of 1976 and 1975, respectively. Operating performances for the first 9 months averaged 63.8 percent of maximum dependable capacity as compared with 57.7 percent for the similar 1976 period.

The Arizona Public Service Company placed formal orders for units 4 and 5 of their Palo Verde project. These 1,270-megawatt pressurized water reactors (PWR), planned for operation in 1988 and 1990, respectively, will bring the total capacity at the Palo Verde plant to over 6,300 megawatts, thus making it the largest single nuclear installation in the world. Reactor orders for 1977 now total four. (Two 1,250-megawatt PWR's, also scheduled for 1988 and 1990 operation, were ordered in August by the New York State Electric and Gas Company.)

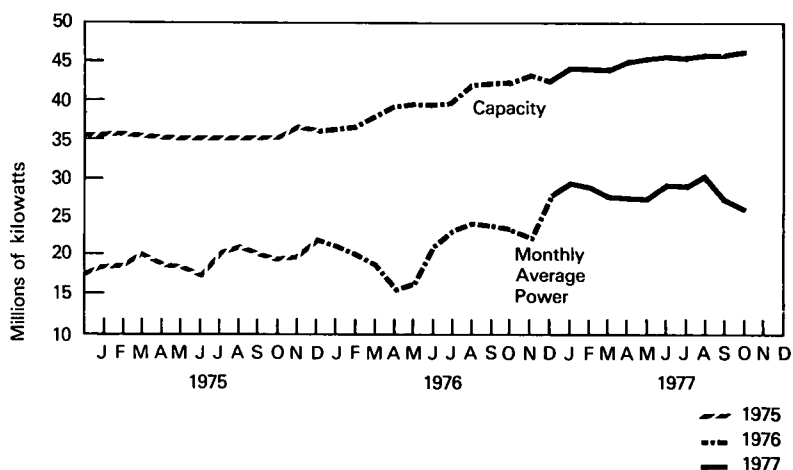
In other developments, due to what was termed as a change in long-range planning, eight reactors totaling 9,600 megawatts were canceled, including one unit in Nebraska, two units in California, and five units in New York State.

*See Definitions.

U.S. Nuclear Powerplant Operations*

		Maximum Dependable Capacity	Average Power	Percent of Total Domestic Electricity Generation
Thousands of net kilowatts				
1972 AVERAGE		7,726	6,174	3.1
1973 AVERAGE		13,850	8,760	4.5
1974 AVERAGE		29,921	13,011	6.1
1975	January	35,691	18,734	8.5
	February	35,899	18,948	8.7
	March	35,686	20,003	9.6
	April	35,017	18,510	9.1
	May	35,017	18,500	9.0
	June	35,322	17,701	7.8
	July	35,596	20,661	8.7
	August	35,589	21,344	8.8
	September	35,540	19,994	9.3
	October	35,540	19,659	9.4
	November	36,752	19,672	9.3
	December	36,424	22,418	9.9
AVERAGE		35,671	19,692	9.0
1976	January	36,750	21,638	9.0
	February	36,879	20,657	9.2
	March	38,072	18,808	8.5
	April	39,763	15,142	7.2
	May	39,902	16,034	7.6
	June	39,781	21,885	9.1
	July	40,168	23,802	9.5
	August	42,067	24,681	9.8
	September	42,896	24,014	10.5
	October	42,877	23,327	10.6
	November	43,673	22,408	9.5
	December	42,877	28,380	11.5
AVERAGE		40,642	21,756	9.4
1977	January	44,316	29,714	11.3
	February	44,282	29,168	12.0
	March	44,289	27,785	12.2
	April	45,131	27,588	12.6
	May	45,222	27,526	12.1
	June	45,991	29,539	11.8
	July	45,984	29,335	11.0
	August	45,982	R30,563	11.6
	September	45,981	R27,206	11.1
	October	**46,018	**25,826	**11.4
AVERAGE (10 months)		45,320	28,503	11.7

U.S. Nuclear Powerplants



*Includes all units licensed to operate, whether in commercial operation or startup testing.

**Preliminary data.

R=Revised data.

Sources: Capacity is from U.S. Nuclear Regulatory Commission; remaining data are from Federal Power Commission Form 4, "Monthly Powerplant Report."

Status of Nuclear Powerplants—October 31, 1977

Status	Number of Plants				Design Capacity	
	Boiling Water Reactors	High Temperature Gas Reactors	Pressurized Water Reactors	Other*	Total	Net Electrical Megawatts
Licensed to operate	25	1	39	0	65	47,000
Construction permit granted	27	0	51	0	78	83,000
Construction permit pending	13	0	41	4	58	65,000
Orders placed for plant	3	0	10	0	13	16,000
Publicly announced	—	—	—	9	9	11,000
TOTAL	68	1	141	13	223	222,000

*Includes 1 Liquid Metal Fast Breeder Reactor and 12 announced intentions to order for which a reactor type has not been chosen.

Source: U.S. Nuclear Regulatory Commission.

U.S. Uranium Enrichment—October 1977

	Domestic Customers	Foreign Customers	Total
Separative work performed (in metric tons of separative work units)	805.724	602.773	1,408.497
Cost (in millions of dollars)	54.047	38.595	92.642
Product quantity (in metric tons of uranium)	204.067	133.234	337.301
Feed requirement (in metric tons of uranium)	1,050.043	742.362	1,792.405

Source: U.S. Department of Energy.

Nuclear Power Generation by Major Non-Communist Countries—October 1977

Country	Number of Reactors*	Capacity	Generation of Electricity				
			Generation	Percent of Design Capacity			
			October	October	Year**		
					1974	1975	1976
		Thousands of gross electrical kilowatts	Millions of gross kilowatt hours				
Canada	***7	3,960	2,875	86	74	64	85
Federal Republic of Germany	10	6,410	1,993	42	57	72	68
France	12	4,870	1,862	51	57	68	58
Great Britain	†31	8,040	2,726	52	61	57	64
India	3	620	170	37	55	46	58
Italy	3	630	215	46	61	69	69
Japan	14	7,990	2,170	36	61	36	57
Spain	3	1,120	685	82	75	77	77
Sweden	6	3,880	1,601	55	20	44	55
Switzerland	3	1,060	791	100	76	84	86
United States	64	47,311	20,061	57	57	60	56
TOTAL	155	85,891	35,149	55	58	58	60

*Includes only operational units, i.e., those which have generated electricity during, or prior to, the current month.

**Averages are computed for those units in operation on January 1 of each year.

***Figures are based on 5-week period.

†Figures for 21 units are based on 4-week period; figures for remaining units are for 31 days.

Source: *Nucleonics Week*.

Summary of Monthly Fuel Cycle—September 1977

Fuel Cycle Activity	Product	Processed Material ¹	Percent Utilization of Industry Capacity	Energy Content of Processed Material ²	Energy Consumed in Fuel Cycle Activity ³	Cost Contribution to Electric Power ⁴
		MTU except where noted		Billion Btu		Mills per kilowatt hour
Milling	Yellowcake (U ₃ O ₈) Deliveries	817	78	279,000	448	1.27
Conversion	Uranium Hexafluoride (UF ₆) Deliveries	1,383	⁵ 96	472,000	208	0.16
Enrichment	Enriched UF ₆ Deliveries	507 (1,691 MT-SWU)	(⁶)	1,038,000	4,619	1.53
Fabrication	Finished Fuel Assemblies Shipped	63	NA	128,000	17	0.47
Powerplant Operation	Electricity Generated	19,237 (million kWhe)	58	205,000	1,079 (million kWhe)	10.93
	Spent Fuel Discharged	208	—	—	—	71.57
Reprocessing	Spent Fuel Received	2	—	—	—	
	Spent Fuel Reprocessed	0	—	—	—	

¹ Units of measure are discussed in Explanatory Notes 10 and 11.

² Assumes 25,000 MWD/MTU for heat content of enriched uranium and a 6.1 feed to product ratio at the enrichment plant.

³ Energy requirements for processing are obtained from U.S.A.E.C. Report No. WASH 1248.

⁴ Cost contribution is computed from unit prices paid for current month's production and requirement for a model 1000 MWe reactor operating at 65 percent capacity factor. Because of the long lead time required for nuclear fuel processing, the sum of numbers in this column does not necessarily reflect the fuel cost of current electricity production.

⁵ Figure for conversion utilization represents material shipped.

⁶ ERDA's enrichment plants are presently operating at maximum utilization of available electric power, with the excess production being placed in the "Preproduction stockpile" in anticipation of high demand for enriched uranium in the 1980's.

⁷ Figure represents current industry estimate for cost of spent fuel shipment, reprocessing, and waste disposition, exclusive of cost credits for recovered uranium and plutonium.

NA=Not available.

Source: DOE.

Energy Consumption

Domestic energy consumption in September 1977 was 5.89 quadrillion Btu, 5.3 percent more than during September 1976, and 9.3 percent more than in September 1975. The sectoral breakout for September is not yet available.

Effective August 1977, the American Gas Association (AGA) has changed natural gas sales reporting procedures in two ways: (1) Certain groups of customers were reclassified from the Industrial to the Commercial sector, and (2) all sales to electric utilities are now reported as Industrial (previously some sales to electric utilities were assigned to the "Other" category). Because of this, EIA has made a slight change in computational procedures: 100 percent of the AGA "Other" category is assigned to the Residential/Commercial sector. Formerly, 39 percent was assigned to this sector. Since the two AGA changes tend to counterbalance each other, the general trend of EIA consumption data is preserved.

In August 1977, the combined Residential/Commercial sector consumed 2.11 quadrillion Btu, which was 7.1 percent more than that consumed during August 1976 and 7.5 percent more than during August 1975.

Industrial energy consumption for August 1977 was 2.32 quadrillion Btu, up 2.6 percent and 9.9 percent from the levels for August 1976 and August 1975, respectively. Industrial natural gas consumption for August 1977 was 0.73 quadrillion Btu, 3.0 percent more than in August 1976 and 5.4 percent more than in August 1975.

Transportation consumption for August 1977 totaled 1.68 quadrillion Btu, representing increases of 5.4 percent and 7.3 percent compared with transportation consumption for August 1976 and August 1975, respectively.

Heating Degree-Days

For the period October 31 through November 27, 1977, the Nation accumulated 11.4 percent fewer than normal heating degree-days, indicating warmer than

normal weather, and 26.8 percent fewer than that for the same period in 1976.

Regionally, heating degree-day accumulations in November ranged from 1.6 percent below normal in the Rocky Mountain States to 21.9 percent below normal in the South.

National average cumulative heating degree-days for the period July 1 through November 27, 1977, were 1.8 percent below normal and 23.3 percent below the corresponding 1976 period.

Energy Consumption

Domestic Energy Consumption by Primary Energy Type

		Coal*	Natural Gas (dry)	Petroleum	Hydroelectric Power**	Nuclear Electric Power	Total	Cumulative Total
		Quadrillion (10 ¹⁵) Btu						
1972	TOTAL	12.424	22.984	32.965	2.946	0.567	71.895	
1973	TOTAL	13.294	22.512	34.852	3.006	0.888	74.553	
1974	TOTAL	12.889	21.732	33.468	3.295	1.215	72.600	
1975	January	1.148	2.295	3.067	0.268	0.149	6.927	6.927
	February	1.054	1.980	2.629	0.256	0.136	6.054	12.982
	March	1.087	1.943	2.780	0.299	0.159	6.267	19.249
	April	1.004	1.608	2.646	0.285	0.142	5.685	24.934
	May	0.984	1.359	2.582	0.296	0.147	5.368	30.301
	June	1.032	1.283	2.574	0.290	0.136	5.315	35.616
	July	1.091	1.341	2.682	0.273	0.164	5.550	41.167
	August	1.131	1.398	2.693	0.243	0.169	5.634	46.800
	September	1.015	1.399	2.600	0.221	0.153	5.388	52.188
	October	1.035	1.576	2.790	0.243	0.156	5.801	57.989
	November	1.059	1.674	2.601	0.262	0.151	5.747	63.736
	December	1.174	2.092	3.098	0.278	0.178	6.821	70.557
	TOTAL	12.813	19.948	32.742	3.215	1.839	70.557	
1976	January	1.218	2.334	3.169	0.281	0.172	7.174	7.174
	February	1.078	1.975	2.778	0.265	0.153	6.248	13.422
	March	1.119	1.752	2.947	0.286	0.149	6.253	19.675
	April	1.070	1.536	2.749	0.261	0.117	5.732	25.408
	May	1.072	1.460	2.722	0.275	0.127	5.656	31.064
	June	1.115	1.358	2.776	0.276	0.168	5.693	36.756
	July	1.188	1.397	2.830	0.281	0.189	5.884	42.641
	August	1.197	1.340	2.835	0.258	0.196	5.825	48.466
	September	1.099	1.324	2.774	0.222	0.184	5.603	54.069
	October	1.134	1.651	2.905	0.229	0.185	6.104	60.173
	November	1.182	1.909	3.107	0.216	0.172	6.586	66.759
	December	1.281	2.276	3.494	0.220	0.225	7.495	74.255
	TOTAL	13.752	20.311	35.087	3.068	2.037	74.255	
1977	January	1.312	2.444	3.489	0.225	0.236	7.706	7.706
	February	1.169	1.834	3.143	0.167	0.209	6.522	14.228
	March	1.157	1.731	3.076	0.216	0.220	6.400	20.628
	April	1.080	1.441	2.897	0.204	0.212	5.833	26.461
	May	1.152	1.387	R2.890	0.204	0.218	R5.850	R32.311
	June	1.203	R1.342	2.986	0.189	0.227	R5.946	R38.258
	July	1.315	R1.342	2.990	0.185	0.233	R6.064	R44.321
	August	R1.279	R1.376	R3.029	R0.183	0.242	R6.110	R50.431
	September	1.182	1.389	2.934	0.176	0.209	5.889	56.320
	TOTAL (9 months)	10.847	14.284	27.434	1.750	2.006	56.320	

*Includes bituminous coal, lignite, and anthracite coal.

**Includes utility production, industrial production, and net imports.

R=Revised.

Source: EIA calculations based on data appearing elsewhere in this publication.

Domestic Energy Consumption by Economic Sector*

		Residential/ Commercial	Industrial	Transportation	Total
		Quadrillion (10 ¹⁵) Btu			
1973**	TOTAL	26.515	29.161	18.877	74.553
1974**	TOTAL	25.853	28.486	18.261	72.600
1975	January	2.845	2.489	1.594	6.927
	February	2.583	2.064	1.408	6.054
	March	2.554	2.176	1.537	6.267
	April	2.302	1.861	1.523	5.685
	May	1.897	1.934	1.537	5.368
	June	1.811	1.987	1.517	5.315
	July	1.943	2.057	1.550	5.550
	August	1.925	2.144	1.564	5.634
	September	1.789	2.125	1.474	5.388
	October	1.860	2.380	1.561	5.801
	November	1.953	2.343	1.452	5.747
	December	2.649	2.523	1.649	6.821
	TOTAL	26.111	26.081	18.365	70.557
1976	January	R3.115	R2.429	1.629	7.173
	February	R2.681	R2.106	1.462	6.248
	March	R2.429	R2.198	1.626	6.253
	April	R2.084	R2.068	1.580	5.732
	May	R1.913	R2.189	1.553	5.656
	June	R1.865	R2.229	1.600	5.693
	July	R1.965	R2.282	1.637	5.884
	August	R1.971	R2.261	1.592	5.825
	September	R1.835	R2.210	1.558	5.603
	October	R1.941	R2.564	1.599	6.104
	November	R2.362	R2.582	1.642	6.586
	December	R2.991	R2.713	1.792	7.495
	TOTAL	R27.152	R27.832	19.271	74.255
1977	January	R3.423	R2.559	1.723	7.706
	February	R2.969	R1.973	1.580	6.522
	March	R2.495	R2.253	1.652	6.400
	April	R2.095	R2.113	1.625	5.833
	May	R1.919	R2.323	R1.608	R5.850
	June	R1.977	R2.320	1.649	R5.946
	July	R2.130	R2.269	1.665	R6.064
	August	2.111	2.321	1.678	6.110
	TOTAL (8 months)	19.120	18.131	13.180	50.431

37.6 quads

*See Explanatory Note 12 for definitions of the Residential/Commercial, Industrial, and Transportation sectors. The methodology used for sector calculations is provided in the footnotes of the next table.

**Monthly data for 1973 and 1974 are published in the September 1977 issue of the *Monthly Energy Review*.

Energy Consumption by Economic Sector and Primary Source—August 1977 [Quadrillion (10¹⁵) Btu]

Sector ¹	Primary Energy Source					Primary Energy Consumption	Electricity Distributed ⁷	Net Energy Consumption	Electrical Energy Loss Distributed ⁸	Ultimate Energy Disposition
	Coal ²	Natural Gas (dry) ³	Petroleum ⁴	Hydroelectric ⁵	Nuclear ⁶					
Residential and Commercial	0.014	0.256	0.537	—	—	0.806	0.377	1.183	0.927	2.111
Industrial	0.302	0.727	0.522	0.003	—	1.554	0.222	1.776	0.545	2.321
Transportation	0.001	0.037	1.624	—	(⁹)	1.661	0.005	1.666	0.012	1.678
Electric Utilities	0.962	0.358	0.346	0.181	0.242	2.089	—	—	—	—
TOTAL	1.279	1.376	3.029	0.183	0.242	6.110	0.604	4.625	1.485	6.110

¹ See Explanatory Note 12 for definitions of the Residential and Commercial, Industrial, Transportation, and Electric Utilities Sectors.

² Data are from the Bureau of Mines. Includes anthracite and bituminous coal and lignite.

³ Aggregate data are from the Bureau of Mines. FPC provided data on natural gas consumed by electric utilities. Data from the American Gas Association are used for the Residential and Commercial Sector, which includes 100 percent of the AGA "Other" category. Natural gas used in transportation, mostly for pipeline use, is estimated to be 3.6 percent of total natural gas consumption less electric utilities. This percentage is derived from 1974, 1975, and 1976 Bureau of Mines data on consumption. The Industrial Sector is then the difference between the total and the sum of the other sectors.

⁴ Aggregate petroleum data are from the Bureau of Mines. FPC provided data on oil consumed by electric

utilities. Petroleum consumed in transportation was calculated based on Department of Transportation data as follows: Motor gasoline—100 percent; naphtha jet fuel—100 percent; kerosene jet fuel—97 percent; distillate fuel oil—30.3 percent; residual fuel oil—11.2 percent; all other products—4.7 percent. The remainder is distributed to economic sectors using the following percentage shares, derived from 1974, 1975, and 1976 Bureau of Mines data on consumption: Residential and Commercial—50.7 percent; Industrial—49.3 percent.

⁵ FPC hydroelectric power production plus net imports of electricity. These imports are assumed to be from hydroelectric power sources and are estimated at 0.011 quadrillion Btu per month in 1974, 0.005 quadrillion Btu per month for 1975, and 0.007 quadrillion Btu per month for 1976 and 1977. Monthly industrial hydroelectric power consumption is estimated to be one-twelfth of the preliminary Bureau of Mines

annual figure for 1976.

⁶ FPC nuclear power production.

⁷ Electricity was distributed using Edison Electric Institute data on kilowatt-hour sales to ultimate customers. Electrical energy consumed by railroads and for street and highway lighting was distributed to the Transportation Sector. All "Other" sales, largely for use in government buildings, were distributed to the Residential and Commercial Sector.

⁸ In generating electricity with nuclear or fossil fuels, approximately 65 percent of the energy is lost in the form of heat. Transmission and distribution losses consume about an additional 3 percent of the energy inputs of the utility industry. In order to fully account for all energy consumed both directly and indirectly (i.e., ultimate energy disposition), the electricity losses are allocated to the final end-use sectors in proportion to their direct kilowatt-hour usage.

⁹ Negligible.

Energy Consumption (Continued)

Percent Changes in Energy Consumption for August 1977 by Sources and Economic Sectors

	August 1977 Consumption	Percent Change from August 1976*	Cumulative Percent Change from 1976 (January through August)*
	Quadrillion Btu		
Refined Petroleum Products	3.029	+6.8	+7.9
Motor Gasoline	1.205	+3.3	+2.7
Jet Fuel	0.190	+13.3	+4.7
Distillate	0.462	+14.5	+13.7
Residual	0.586	+12.2	+15.4
Other Petroleum Products	0.586	+3.3	+8.3
Natural Gas (Dry)	1.376	+2.7	-1.5
Coal (Anthracite, bituminous, and lignite)	1.279	+6.9	+7.2
Hydroelectric and Nuclear Electric Power	0.604	+6.1	+6.6
TOTAL ENERGY USE	6.110	+4.9	+4.5
Economic Sector Consumption			
Residential and Commercial	2.111	+7.1	+6.5
Industrial	2.321	+2.6	+2.5
Transportation	1.678	+5.4	+4.4

*Computed on a daily average basis.

Energy Consumption (Continued)

Energy Consumption by the Residential and Commercial Economic Sector¹

		Coal	Natural Gas (dry)	Petroleum ²	Electricity Distributed	Electrical Energy Loss Distributed	Total Energy Use	Cumulative Total Energy Use
Quadrillion (10 ¹⁵) Btu								
1973	TOTAL	0.295	7.577	7.077	3.445	8.120	26.515	
1974	TOTAL	0.297	7.427	6.484	3.424	8.222	25.853	
1975	January	0.035	1.124	0.627	0.310	0.748	2.845	2.845
	February	0.023	1.105	0.526	0.292	0.637	2.583	5.427
	March	0.022	1.018	0.546	0.284	0.684	2.554	7.981
	April	0.015	0.905	0.489	0.270	0.623	2.302	10.283
	May	0.012	0.522	0.444	0.259	0.660	1.897	12.180
	June	0.013	0.338	0.435	0.290	0.735	1.811	13.991
	July	0.016	0.294	0.463	0.327	0.843	1.943	15.934
	August	0.015	0.267	0.447	0.342	0.855	1.925	17.859
	September	0.021	0.284	0.484	0.328	0.673	1.789	19.649
	October	0.023	0.375	0.539	0.273	0.650	1.860	21.509
	November	0.024	0.526	0.503	0.266	0.634	1.953	23.462
	December	0.033	0.930	0.635	0.297	0.754	2.649	26.111
	TOTAL	0.255	7.688	6.135	3.538	8.495	26.111	
1976	January	0.031	R1.254	0.656	0.340	0.834	R3.115	R3.115
	February	0.020	R1.090	0.575	0.315	0.681	R2.681	R5.796
	March	0.018	R0.856	0.571	0.286	0.697	R2.429	R8.225
	April	0.021	R0.671	0.500	0.271	0.622	R2.084	R10.309
	May	0.016	R0.488	0.506	0.265	0.638	R1.913	R12.222
	June	0.015	R0.333	0.489	R0.285	R0.744	R1.865	R14.086
	July	0.011	R0.281	0.487	0.331	0.853	R1.965	R16.051
	August	0.015	R0.259	0.506	0.345	0.846	R1.971	R18.022
	September	0.017	R0.272	0.517	0.329	0.700	1.835	R19.858
	October	0.020	R0.395	0.567	0.283	0.676	R1.941	R21.799
	November	0.025	R0.723	0.622	0.287	0.705	R2.362	R24.161
	December	0.037	R1.083	0.726	0.328	0.817	R2.991	R27.152
	TOTAL	0.246	R7.706	6.722	3.665	R8.812	R27.152	
1977	January	0.036	R1.376	0.712	0.365	0.934	R3.423	R3.423
	February	0.025	R1.216	0.674	0.346	R0.709	R2.969	R6.392
	March	0.019	R0.845	0.608	0.301	0.722	R2.495	R8.887
	April	0.021	0.623	0.538	0.277	R0.637	R2.095	R10.982
	May	0.017	R0.405	R0.529	0.271	0.698	R1.919	R12.902
	June	0.015	R0.315	0.549	R0.311	R0.787	R1.977	R14.879
	July	0.014	R0.283	R0.506	0.367	R0.961	R2.130	R17.009
	August	0.014	0.256	0.537	0.377	0.927	2.111	19.120
	TOTAL (8 months)	0.161	5.318	4.652	2.615	6.374	19.120	

(See footnotes on page 52)

Energy Consumption by the Industrial Economic Sector¹

		Coal	Natural Gas (dry)	Petroleum ²	Hydro- electric	Electricity Distributed	Electrical Energy Loss Distributed	Total Energy Use	Cumulative Total Energy Use
Quadrillion (10 ¹⁵) Btu									
1973	TOTAL	4.370	10.493	6.403	0.036	2.341	5.518	29.161	
1974	TOTAL	4.062	10.137	6.305	0.036	2.337	5.609	28.486	
1975	January	0.341	0.887	0.610	0.003	0.189	0.458	2.489	2.489
	February	0.342	0.619	0.511	0.003	0.185	0.404	2.064	4.553
	March	0.362	0.648	0.531	0.003	0.186	0.447	2.176	6.729
	April	0.340	0.433	0.475	0.003	0.184	0.425	1.861	8.590
	May	0.321	0.516	0.431	0.003	0.187	0.475	1.934	10.523
	June	0.299	0.595	0.423	0.003	0.189	0.478	1.987	12.510
	July	0.286	0.640	0.450	0.003	0.189	0.489	2.057	14.567
	August	0.291	0.724	0.435	0.003	0.197	0.494	2.144	16.711
	September	0.292	0.725	0.470	0.003	0.199	0.408	2.125	18.836
	October	0.303	0.872	0.524	0.003	0.201	0.478	2.380	21.216
	November	0.316	0.863	0.489	0.003	0.199	0.473	2.343	23.559
	December	0.334	0.875	0.617	0.003	0.196	0.498	2.523	26.081
	TOTAL	3.826	8.425	5.966	0.035	2.302	5.527	26.081	
1976	January	0.320	R0.792	0.638	0.003	0.196	0.480	R2.429	R2.429
	February	0.302	R0.616	0.559	0.003	0.198	0.428	R2.106	R4.535
	March	0.321	R0.613	0.555	0.003	0.206	0.501	R2.198	R6.734
	April	0.320	R0.584	0.487	0.003	0.205	0.470	R2.068	R8.802
	May	0.327	R0.656	0.492	0.003	0.209	0.503	R2.189	R10.991
	June	0.312	R0.667	0.475	0.003	R0.214	0.558	R2.229	R13.220
	July	0.311	R0.731	0.473	0.003	0.214	0.551	R2.282	R15.502
	August	R0.305	R0.706	0.492	0.003	0.219	0.537	R2.261	R17.764
	September	0.303	R0.713	0.503	0.003	0.220	0.468	R2.210	R19.974
	October	0.318	R0.949	0.551	0.003	0.219	0.523	R2.564	R22.537
	November	0.327	R0.903	0.605	0.003	0.215	0.530	R2.582	R25.120
	December	0.357	R0.899	0.706	0.003	0.214	0.533	R2.713	R27.832
	TOTAL	R3.822	R8.828	6.537	0.033	R2.529	R6.083	R27.832	
1977	January	0.338	R0.777	0.693	0.003	0.210	0.539	R2.559	R2.559
	February	0.330	R0.354	0.655	0.003	0.207	0.424	R1.973	R4.533
	March	0.331	R0.594	0.591	0.003	0.216	R0.518	R2.253	R6.785
	April	0.327	0.545	0.523	0.003	0.217	0.498	2.113	R8.899
	May	0.331	R0.675	R0.514	0.003	0.224	0.576	R2.323	R11.221
	June	0.317	R0.671	0.534	0.003	R0.225	R0.570	R2.320	R13.541
	July	0.322	R0.667	R0.492	0.003	0.217	R0.568	R2.269	R15.810
	August	0.302	0.727	0.522	0.003	0.222	0.545	2.321	18.131
	TOTAL (8 months)	2.598	5.010	4.523	0.022	1.738	4.239	18.131	

(See footnotes on page 52)

Energy Consumption (Continued)

Energy Consumption by the Transportation Economic Sector¹

		Coal	Natural Gas (dry)	Petroleum ²	Electricity Distributed	Electrical Energy Loss Distributed	Total Energy Use	Cumulative Total Energy Use
Quadrillion (10 ¹⁵) Btu								
1973	TOTAL	0.009	0.733	17.940	0.058	0.137	18.877	
1974	TOTAL	0.009	0.656	17.392	0.060	0.144	18.261	
1975	January	0.001	0.075	1.499	0.006	0.013	1.594	1.594
	February	0.001	0.064	1.325	0.005	0.012	1.408	3.002
	March	0.001	0.062	1.456	0.005	0.013	1.537	4.538
	April	0.001	0.050	1.455	0.005	0.012	1.523	6.061
	May	0.001	0.039	1.481	0.005	0.012	1.537	7.598
	June	0.001	0.035	1.465	0.005	0.012	1.517	9.115
	July	0.001	0.035	1.497	0.005	0.012	1.550	10.666
	August	0.001	0.037	1.510	0.005	0.012	1.564	12.230
	September	0.001	0.039	1.419	0.005	0.010	1.474	13.704
	October	0.001	0.047	1.495	0.005	0.013	1.561	15.264
	November	0.001	0.052	1.380	0.006	0.013	1.452	16.716
	December	0.001	0.067	1.560	0.006	0.015	1.649	18.365
	TOTAL	0.008	0.602	17.544	0.062	0.149	18.365	
1976	January	0.001	0.076	1.532	0.006	0.015	1.629	1.629
	February	0.001	0.064	1.380	0.006	0.012	1.462	3.091
	March	0.001	0.055	1.552	0.005	0.013	1.626	4.717
	April	0.001	0.047	1.516	0.005	0.012	1.580	6.297
	May	0.001	0.043	1.493	0.005	0.012	1.553	7.850
	June	0.001	0.037	1.545	0.005	0.012	1.600	9.450
	July	0.001	0.038	1.581	0.005	0.013	1.637	11.087
	August	0.001	0.036	1.538	0.005	0.013	1.592	12.680
	September	0.001	0.037	1.504	0.005	0.011	1.558	14.237
	October	0.001	0.050	1.530	0.006	0.013	1.599	15.837
	November	0.001	0.061	1.561	0.006	0.014	1.642	17.479
	December	0.001	0.074	1.697	0.006	0.015	1.792	19.271
	TOTAL	0.008	0.617	18.428	0.064	0.154	19.271	
1977	January	0.001	0.080	1.620	0.006	0.016	1.723	1.723
	February	0.001	0.059	1.503	0.006	0.012	1.580	3.303
	March	0.001	0.054	1.580	0.005	0.012	1.652	4.955
	April	0.001	0.044	1.564	0.005	0.011	1.625	6.580
	May	0.001	0.040	R1.549	0.005	0.013	R1.608	R8.188
	June	0.001	0.037	1.595	0.005	0.012	1.649	R9.837
	July	0.001	0.035	1.611	0.005	0.013	1.665	R11.502
	August	0.001	0.037	1.624	0.005	0.012	1.678	13.180
	TOTAL (8 months)	0.005	0.386	12.647	0.042	0.101	13.180	

¹ See Explanatory Note 12 for definitions of the Residential and Commercial, Industrial, and Transportation Sectors. The methodology used for sector calculations is provided in the footnotes of the previous table. Printed totals may differ slightly from the sum of their row/column components due to independent rounding.

² The percentage share used in calculating Residential and Commercial consumption of petroleum was 52.5 percent for 1973 and 50.7 percent for 1974, 1975, 1976, and 1977.

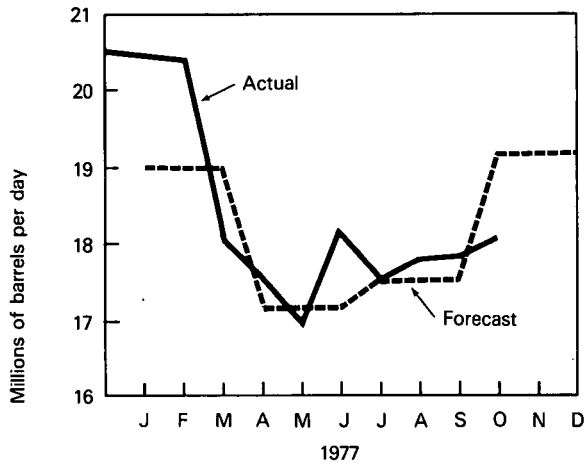
³ The percentage share used in calculating Industrial consumption of petroleum was 47.5 percent for 1973 and 49.3 percent for 1974, 1975, 1976, and 1977.

⁴ The percentage share used in calculating Transportation consumption of natural gas was 3.9 percent for 1973 and 3.6 percent for 1974, 1975, 1976, and 1977.

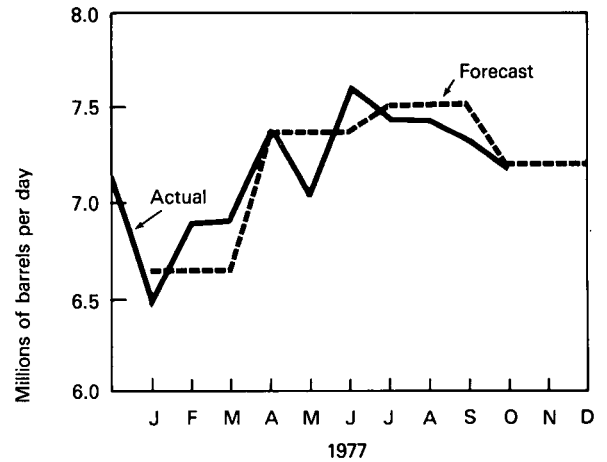
R=Revised data.

Petroleum Consumption and Forecast

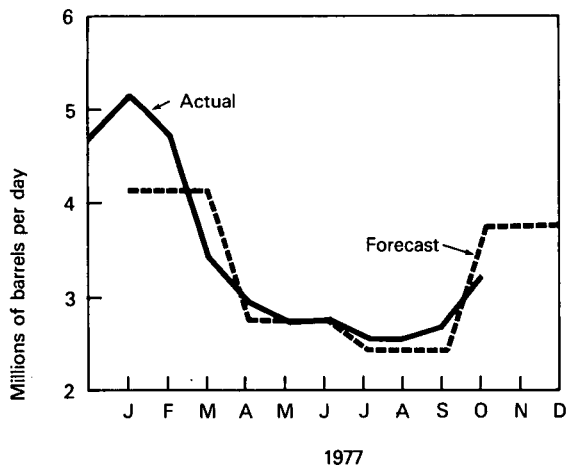
Total Domestic Demand for Petroleum Products



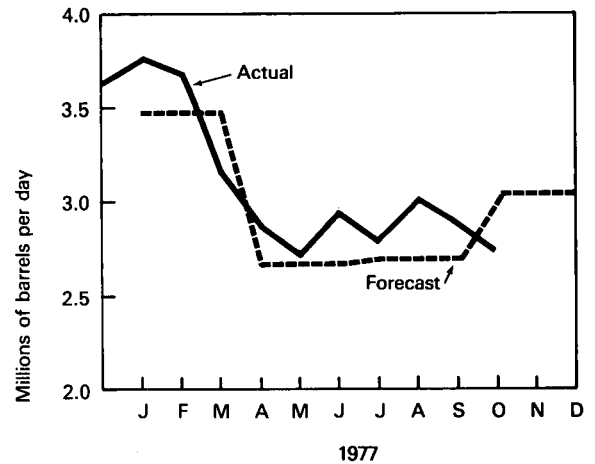
Domestic Demand for Motor Gasoline



Domestic Demand for Distillate Fuel Oil



Domestic Demand for Residual Fuel Oil



Sources: Actual—Monthly figures are based on Bureau of Mines data for December 1976 and January through April 1977, EIA data for May through September 1977, and API data for October 1977.

Forecast—The EIA forecast is shown for quarterly intervals. See Explanatory Note 5 for discussion of basic assumptions of forecast.

Heating Degree-Days*

Petroleum Administration For Defense (PAD) Districts	October 31 through November 27, 1977			Cumulative July 1 through November 27		
	1977	1976**	Normal (1941-70)**	1977	1976**	Normal (1941-70)**
PAD District I	407.8	592.5 (-31.2)	463.6 (-12.0)	765.9	1,014.7 (-24.5)	750.5 (2.0)
New England Conn., Maine, Mass., N.H., R.I., Vt.	517.5	694.2 (-25.5)	594.0 (-12.9)	1,029.6	1,288.6 (-20.1)	1,060.4 (-2.9)
Middle Atlantic Del., Md., N.J., N.Y., Pa.	490.1	675.0 (-27.4)	543.2 (-9.8)	930.3	1,182.0 (-21.3)	888.7 (4.7)
Lower Atlantic Fla., Ga., N.C., S.C., Va., W. Va.	235.8	423.7 (-44.3)	286.7 (-17.7)	402.8	642.8 (-37.3)	406.7 (-1.0)
PAD District II Ill., Ind., Iowa, Kans., Ky., Mich., Minn., Mo., Nebr., N. Dak., Ohio, Okla., S. Dak., Tenn., Wisc.	585.8	798.7 (-26.7)	650.4 (-9.9)	1,068.8	1,418.1 (-24.6)	1,067.0 (0.2)
PAD District III Ala., Ark., La., Miss., N. Mex., Tex.	200.4	399.8 (-49.9)	256.6 (-21.9)	279.5	593.6 (-52.9)	332.6 (-16.0)
PAD District IV Colo., Idaho, Mont., Utah, Wyo.	725.9	689.1 (5.3)	738.1 (-1.6)	1,237.6	1,320.2 (-6.3)	1,314.1 (-5.8)
PAD District V Ariz., Calif., Nev., Oreg., Wash.	244.4	189.1 (29.2)	282.4 (-13.5)	472.6	373.8 (26.4)	562.3 (-16.0)
U.S. AVERAGE	426.3	582.4 (-26.8)	481.4 (-11.4)	777.5	1,013.5 (-23.3)	791.9 (-1.8)

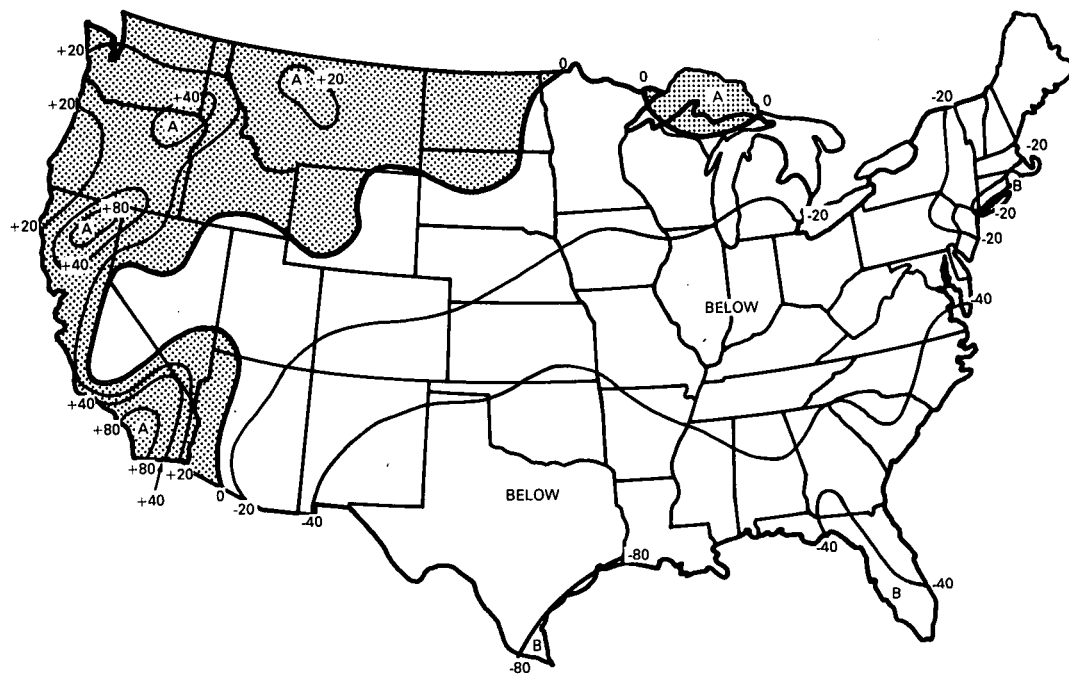
*See Explanatory Note 13 for explanation of degree-days.

**Percentage change in parentheses.

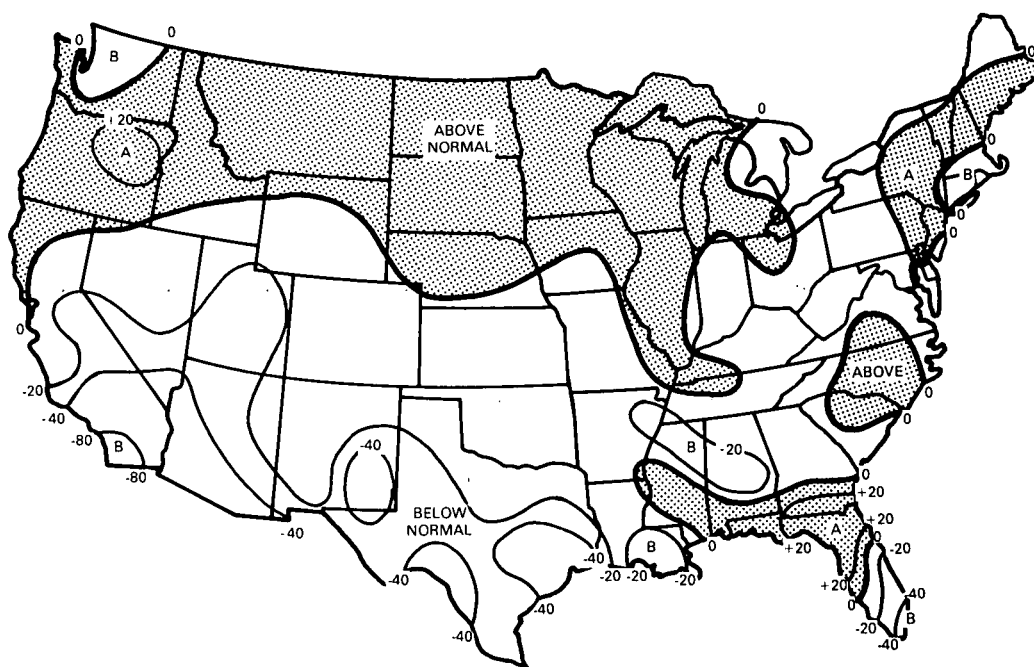
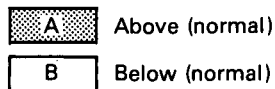
Heating Degree-Days (Continued)

Heating Degree-Days Accumulated from July 1, 1977, through November 27, 1977

Percent Departure from 1976



Percent Departure from Normal (1941-70)



Note: Above normal heating-days correspond to below normal temperatures.
Source: Department of Commerce—NOAA.

Part 8

Resource Development

Oil and Gas Exploration and Development

The monthly rotary drilling rig count surpassed the 2,100 mark for the second consecutive time in November with 2,113 rigs in use. Not since 1959 has the November count been so high. For the January-November 1977 period, the average number of rigs in use was 1,990, up 21.3 percent over the count for the comparable 1976 period.

There were 3,840 exploratory and development wells drilled during October 1977, 17.5 percent more than in October 1976. Well completions for the first 10 months of the year were up 9.3 percent from the number completed during the corresponding 1976 period.

The number of crews engaged in seismic geophysical exploration for oil and gas increased by 10 in October to 330 (302 land, 28 marine). It was the highest level since July 1974 when 334 crews were active and represented a 23.6-percent increase over the October 1976 count. This figure, however, is still less than half the average number of crews in operation during 1952, the peak year of domestic oil and gas geophysical exploration.

Oil and Gas Exploration and Development

		Rotary Rigs in Operation		Exploratory and Development Wells Drilled*				Total Footage of Wells Drilled	
		Monthly Average		Oil	Gas	Dry	Total	Thousands of feet	
1972	AVERAGE	1,107	TOTAL	11,306	4,928	11,057	27,291	134,602	
1973	AVERAGE	1,194	TOTAL	9,902	6,385	10,305	26,592	136,391	
1974	AVERAGE	1,475	TOTAL	12,784	7,240	11,674	31,698	150,551	
1975	January	1,615		1,299	655	1,040	2,994	13,189	
	February	1,611		1,097	458	933	2,488	12,071	
	March	1,651		1,341	658	1,091	3,090	15,472	
	April	1,604		1,181	506	1,071	2,758	13,545	
	May	1,592		1,100	451	891	2,442	12,054	
	June	1,613		1,246	509	1,022	2,777	13,540	
	July	1,616		1,229	557	920	2,706	12,545	
	August	1,645		1,272	587	1,122	2,981	14,221	
	September	1,699		1,504	831	1,165	3,500	15,636	
	October	1,716		1,633	682	1,310	3,625	16,689	
	November	1,757		1,619	776	1,270	3,665	15,788	
	December	1,793		1,817	832	1,424	4,073	17,556	
		AVERAGE	1,660	TOTAL**	16,408	7,580	13,247	37,235	174,434
1976	January	1,710		1,465	772	1,055	3,292	14,517	
	February	1,594		1,341	652	1,159	3,152	14,888	
	March	1,540		1,726	821	1,301	3,848	18,126	
	April	1,480		1,237	672	994	2,903	13,765	
	May	1,496		1,501	658	1,104	3,263	14,196	
	June	1,546		1,500	709	1,123	3,332	14,780	
	July	1,597		1,312	730	916	2,958	13,716	
	August	1,691		1,265	711	1,140	3,116	14,697	
	September	1,744		1,474	909	1,199	3,582	16,777	
	October	1,794		1,396	750	1,123	3,269	14,542	
	November	1,840		1,291	698	1,222	3,211	14,642	
	December	1,860		1,512	926	1,414	3,852	17,093	
		AVERAGE	1,656	TOTAL**	17,059	9,085	13,621	39,765	181,780
1977	January	1,850		1,391	732	1,096	3,219	14,517	
	February	1,856		1,321	705	999	3,025	14,443	
	March	1,887		1,817	958	1,297	4,072	19,400	
	April	1,907		1,405	818	1,059	3,282	15,523	
	May	1,982		1,382	877	1,150	3,409	16,702	
	June	2,008		1,720	952	1,270	3,942	18,767	
	July	2,023		1,304	724	1,022	3,050	14,529	
	August	2,066		1,400	961	1,179	3,540	16,838	
	September	2,084		1,924	1,105	1,288	4,317	19,333	
	October	2,101		1,562	1,024	1,254	3,840	18,000	
	November	2,113		NA	NA	NA	NA	NA	
		AVERAGE	1,990	TOTAL**	15,226	8,882	11,632	35,740	169,136
		(11 months)		(10 months)					

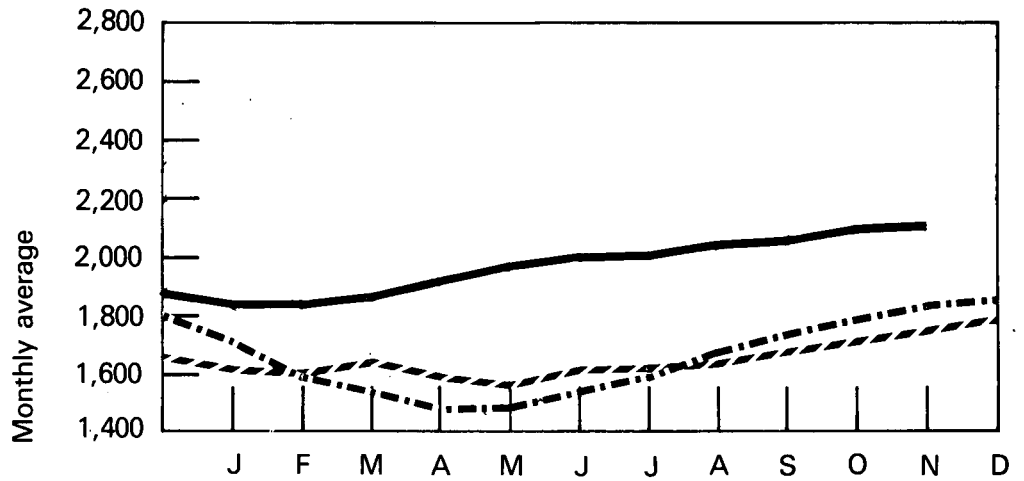
*Excludes service wells and stratigraphic and core tests.

**Totals reflect subsequent data revisions and therefore may not agree with cumulative monthly data.

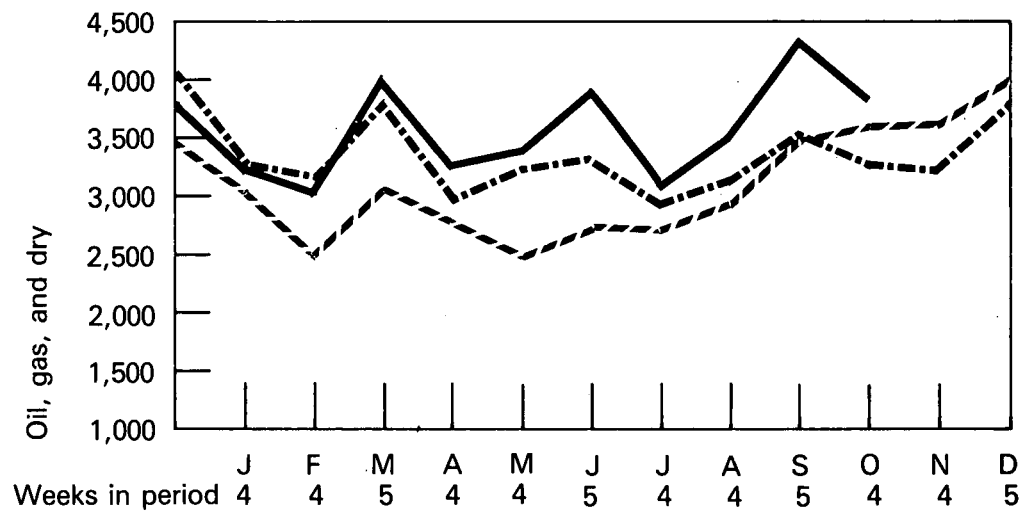
NA=Not available.

Sources: Rotary Rigs: Hughes Tool Company "Rotary Rigs Running - By State;" Wells: American Petroleum Institute "Monthly Drilling Report" and "Quarterly Review of Drilling Statistics for the United States."

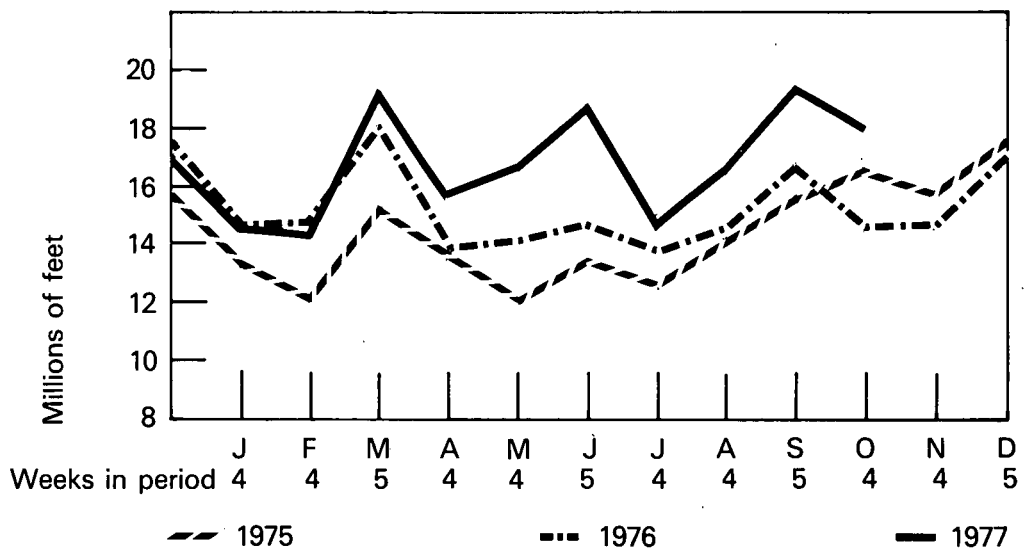
Rotary Rigs in Operation



Total Wells Drilled



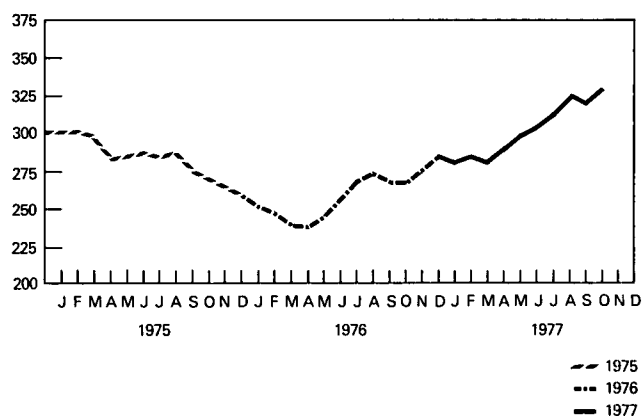
Total Footage of Wells Drilled



Oil and Gas Exploration and Development (Continued)

		Crews Engaged in Seismic Exploration			Line Miles of Seismic Exploration		
		Offshore	Onshore	Total	Offshore	Onshore	Total
		Monthly average			Monthly average		
1972	Year	12	239	251	10,306	9,333	19,639
1973	Year	23	227	250	21,579	10,597	32,175
1974	Year	31	274	305	28,482	13,219	41,701
1975	Year	30	254	284	25,773	12,558	38,331
1976	Year	25	237	262	18,859	11,910	30,769
1975	January	27	274	301			
	February	24	278	302			
	March	23	276	299			
	April	23	260	283			
	May	32	254	286			
	June	38	251	289			
	July	37	249	286			
	August	40	249	289			
	September	40	234	274			
	October	29	241	270			
	November	27	238	265			
	December	26	233	259			
1976	January	20	232	252			
	February	17	232	249			
	March	18	222	240			
	April	17	221	238			
	May	21	226	247			
	June	29	229	258			
	July	30	240	270			
	August	33	242	275			
	September	28	240	268			
	October	21	246	267			
	November	25	250	275			
	December	27	259	286			
1977	January	26	254	280			
	February	27	259	286			
	March	22	260	282			
	April	26	266	292			
	May	29	272	301			
	June	31	274	305			
	July	30	285	315			
	August	31	295	326			
	September	29	291	320			
	October	28	302	330			
AVERAGE (10 months)		28	276	304			

Total Seismic Crews



Source: Society of Exploration Geophysicists "Monthly Seismic Crew Count" and annual reports published in *Geophysics*.

Price

Motor Gasoline

The average selling price of regular gasoline at full service outlets declined slightly (0.1 cent) to 63.2 cents per gallon in October. The average price that retailers paid for regular gasoline was 54.4 cents per gallon, 0.3 cent below the price for the previous month. The dealer margin for full service sales rose 0.2 cent to 8.8 cents per gallon, its highest level since March 1975. The average retail price for regular gasoline at self service outlets was 58.2 cents per gallon, down from its 1977 peak of 59.3 cents per gallon in June.

The average price for premium and unleaded (regular) gasoline at full service outlets was unchanged at 68.9 and 67.0 cents per gallon, respectively, in October.

Heating Oil

The average price of residential heating oil was 46.2 cents per gallon in September, 0.2 cent more than the price in August, and 6.0 cents more than the price in September 1976.

Crude Oil

The average price paid by first purchasers for upper tier crude oil was \$10.35 per barrel in September, 7 cents below the price paid in August and \$1.30 below the price paid 1 year earlier.

The lower tier crude oil price rose slightly (2 cents) to \$5.20 per barrel in September. The average stripper oil price rose 7 cents to \$14.02 per barrel.

The average price for all first purchases of domestic crude oil was \$8.64 per barrel in September, 2 cents above the previous month's price.

The composite cost of crude oil (domestic and imported) purchased by refiners was \$11.98 per barrel in September, down slightly (3 cents) from the August average cost but up 90 cents from the level of a year ago.

Natural Gas

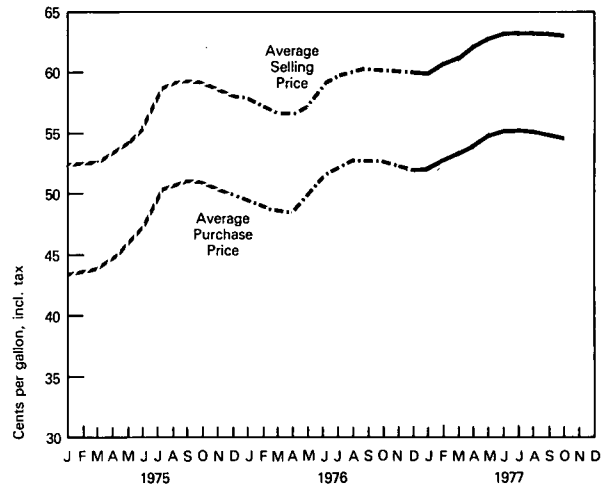
The price of natural gas sold to residential customers for heating use advanced 4.7 cents during October to 235.1 cents per thousand cubic feet. This was 40.1 cents more than the price in October 1976.

Motor Gasoline

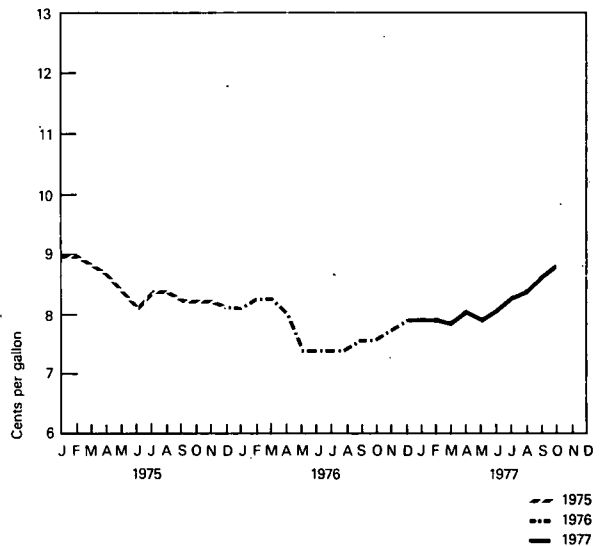
Regular Gasoline at Full Service Retail Outlets

		Average Selling Price	Average Purchase Price	Average Dealer Margin
		Cents per gallon, including tax*		
1974	AVERAGE	52.8	43.1	
1975	January	52.4	43.4	9.0
	February	52.5	43.5	9.0
	March	52.6	43.8	8.8
	April	53.5	44.9	8.6
	May	54.3	46.0	8.3
	June	55.6	47.5	8.1
	July	58.7	50.3	8.4
	August	59.2	50.8	8.4
	September	59.3	51.1	8.2
	October	58.9	50.7	8.2
	November	58.4	50.2	8.2
	December	58.0	49.9	8.1
	AVERAGE	56.2	47.8	
1976	January	57.7	49.6	8.1
	February	57.1	48.8	8.3
	March	56.6	48.3	8.3
	April	56.6	48.6	8.0
	May	57.4	50.0	7.4
	June	59.0	51.6	7.4
	July	59.6	52.2	7.4
	August	60.1	52.7	7.4
	September	60.2	52.6	7.6
	October	60.2	52.6	7.6
	November	60.0	52.2	7.8
	December	59.9	52.0	7.9
	AVERAGE	58.7	51.0	
1977	January	59.9	52.0	7.9
	February	60.7	52.8	7.9
	March	61.3	53.5	7.8
	April	62.2	54.1	8.1
	May	62.9	55.0	7.9
	June	63.4	55.3	8.1
	July	63.4	55.1	8.3
	August	63.4	55.0	8.4
	September	63.3	54.7	8.6
	October	63.2	54.4	8.8

Average Retail Prices for Regular



Average Margins for Regular



*To derive prices excluding taxes, 12.2 cents per gallon may be deducted for 1974 and 1975, and 12.5 cents per gallon may be deducted for 1976 and 1977.

Sources: FEA for 1974; Lundberg Survey, Inc., for January 1975 forward.

Regular Gasoline at Self Service Retail Outlets

		Average Selling Price	Average Dealer Margin
		Cents per gallon, including tax	
1975	November	55.4	5.5
	December	54.9	5.3
1976	January	54.7	5.4
	February	53.8	5.4
	March	53.2	5.3
	April	53.2	4.9
	May	54.4	4.5
	June	56.3	4.8
	July	56.6	4.6
	August	56.7	4.4
	September	56.5	4.3
	October	56.5	4.4
	November	56.4	4.5
	December	56.1	4.5
1977	January	56.2	4.5
	February	57.1	4.4
	March	57.7	4.4
	April	58.4	4.4
	May	58.9	4.2
	June	59.3	4.3
	July	59.2	4.4
	August	58.8	4.2
	September	58.5	4.2
	October	58.2	4.2

Motor Gasoline (Continued)

Average Selling Prices for Premium and Unleaded
Gasoline at Full Service Retail Outlets

		Premium	Unleaded (Regular)
		Cents per gallon, including tax	
1975	January	57.1	NA
	February	57.3	56.1
	March	57.5	56.2
	April	58.2	57.1
	May	59.0	57.9
	June	60.3	58.8
	July	63.1	61.5
	August	63.6	62.0
	September	63.8	62.1
	October	63.4	62.1
	November	63.2	62.0
	December	62.9	61.4
1976	January	62.7	61.2
	February	62.1	60.6
	March	61.6	60.1
	April	61.6	60.4
	May	62.4	61.1
	June	63.9	62.9
	July	64.6	63.2
	August	65.2	63.9
	September	65.3	64.0
	October	65.2	64.0
	November	65.2	63.9
	December	65.0	63.9
1977	January	65.2	64.0
	February	66.1	65.0
	March	66.8	65.4
	April	67.6	66.1
	May	68.4	66.7
	June	68.9	67.2
	July	68.9	67.3
	August	68.9	67.0
	September	68.9	67.0
	October	68.9	67.0

NA=Not available.
Source: Lundberg Survey, Inc.

Average Selling Prices and Margins for Major and Independent Retail Dealers—October 1977

Regular Gasoline—Full Service

	Cents per gallon, including tax	
	Selling Price	Margin
Major	64.3	9.2
Independent	58.4	6.8
National Average	63.2	8.8

Unleaded Gasoline (Regular)—Full Service

	Cents per gallon, including tax	
	Selling Price	Margin
Major	67.9	9.9
Independent	62.0	7.9
National Average	67.0	9.7

Regular Gasoline—Self Service

	Selling Price	Margin
Major	59.2	4.2
Independent	55.9	4.4
National Average	58.2	4.2

Unleaded Gasoline (Regular)—Self Service

	Selling Price	Margin
Major	64.8	6.8
Independent	60.0	5.9
National Average	63.6	6.6

Premium Gasoline—Full Service

	Selling Price	Margin
Major	69.7	10.3
Independent	63.4	8.9
National Average	68.9	10.1

Unleaded Gasoline (Premium)—Full Service

	Selling Price
Major	71.6
Independent	65.5
National Average	71.3

Premium Gasoline—Self Service

	Selling Price	Margin
Major	66.8	7.4
Independent	61.6	7.2
National Average	65.7	7.3

Average Regional Selling Prices and Dealer Margins for Regular Gasoline at Full Service Outlets—October 1977

Region	Selling Price	Margin
	Cents per gallon, including tax	
1A New England	61.4	6.6
1B Mid-Atlantic	64.0	7.7
1C Lower Atlantic	63.3	8.9
2 Mid-Continent	63.1	8.5
3 Gulf Coast	61.7	10.9
4 Rocky Mountain	64.1	10.0
5 West Coast	64.7	8.9
National Average	63.2	8.8

Diesel Fuel

Average Selling Prices and Margins for No. 2 Diesel Fuel*

		Selling Price		Margin	
		Truckstops	Service Stations	Truckstops	Service Stations
Cents per gallon, including tax					
1975	January	NA	50.6	NA	6.8
	February	49.7	50.2	7.0	7.3
	March	50.1	50.2	7.5	7.4
	April	50.5	50.6	7.4	7.5
	May	50.3	51.0	7.0	7.7
	June	51.4	51.4	7.5	7.9
	July	51.2	52.4	7.3	8.2
	August	52.1	52.6	8.1	8.9
	September	52.1	52.7	7.4	8.7
	October	51.8	53.0	6.2	7.7
	November	52.0	53.0	5.3	6.5
	December	51.7	52.4	5.3	6.7
1976	January	52.0	52.5	5.6	7.2
	February	52.1	52.0	6.0	7.3
	March	51.4	52.4	5.6	7.1
	April	51.1	52.8	5.8	7.8
	May	51.4	52.9	6.9	7.8
	June	52.0	53.3	7.0	7.7
	July	52.1	53.1	6.4	7.1
	August	52.3	53.2	6.0	7.0
	September	52.2	53.1	5.7	6.8
	October	52.4	53.1	5.8	6.5
	November	52.9	53.3	6.1	6.4
	December	53.1	53.5	5.7	5.9
1977	January	53.9	54.3	4.9	5.3
	February	55.3	55.6	5.5	5.9
	March	56.0	56.4	5.7	6.2
	April	56.6	56.7	6.5	6.7
	May	56.9	57.1	6.5	6.8
	June	57.3	57.4	7.1	7.2
	July	57.3	57.3	7.2	7.2
	August	57.0	57.2	6.7	7.2
	September	56.8	57.3	6.5	7.1
	October	56.9	57.2	6.4	6.9

*See Explanatory Note 14.

NA=Not available.

Source: Lundberg Survey, Inc.

**Average Selling Prices and
Margins for Major and Independent No. 2 Diesel Fuel Retail Dealers—
October 1977**

Cents per gallon, including tax

Truckstops

	Selling Price	Margin
Major	58.1	6.1
Independent	55.6	7.0
National Average	56.9	6.4

Service Stations

	Selling Price	Margin
Major	59.5	6.8
Independent	55.8	7.0
National Average	57.2	6.9

Source: Lundberg Survey, Inc.

No. 1 Diesel Fuel Prices

Wholesale Retail
Cents per gallon, excluding tax

1975	July	30.1	37.7
	August	30.8	38.2
	September	31.5	36.9
	October	33.1	35.4
	November	33.3	35.0
	December	34.2	35.5
1976	January	33.8	37.1
	February	33.6	35.3
	March	33.9	34.8
	April	34.2	35.4
	May	34.5	37.5
	June	34.7	37.9
	July	35.0	38.1
	August	36.0	38.2
	September	35.3	37.7
	October	36.3	36.4
	November	35.7	37.0
	December	35.5	36.7
1977	January	37.1	37.8
	February	38.4	39.2
	March	39.0	39.6
	April	39.7	40.6
	May	39.5	41.7
	June	40.2	41.2
	July	40.3	41.3
	August*	40.9	41.3
	September*	NA	41.0

*Preliminary.

NA=Not available.

Note: Wholesale refers to the price of diesel fuel sold to other refiners and resellers, including branded jobbers, unbranded jobbers, and commercial accounts. Retail refers to the price at which company-owned and -operated retail dealers sell to consumers.

Source: FEA Form P302-M-1 "Petroleum Industry Monthly Report for Product Prices."

Heating Oil

Residential Heating Oil Prices

		Average Selling Price*	Average Purchase Price*	Average Dealer Margin*
		Cents per gallon		
1974	AVERAGE	34.7	26.9	
1975	January	37.4	29.1	8.3
	February	37.0	28.7	8.3
	March	36.6	28.4	8.2
	April	36.1	29.3	6.8
	May	36.7	30.0	6.7
	June	37.1	30.3	6.8
	July	37.2	30.6	6.6
	August	38.0	31.2	6.8
	September	38.4	31.0	7.4
	October	39.3	31.8	7.5
	November	39.4	32.1	7.3
	December	40.1	32.4	7.7
	AVERAGE	37.7	31.2	
1976	January	40.1	32.4	7.7
	February	40.1	32.4	7.7
	March	39.4	NA	NA
	April	39.0	NA	NA
	May	39.0	NA	NA
	June	39.3	NA	NA
	July	39.3	NA	NA
	August	39.8	NA	NA
	September	40.2	NA	NA
	October	40.7	NA	NA
	November	41.9	NA	NA
	December	43.0	NA	NA
1977	January	44.4	NA	NA
	February	45.3	NA	NA
	March	45.8	NA	NA
	April	45.9	NA	NA
	May	45.7	NA	NA
	June	45.7	NA	NA
	July	45.8	NA	NA
	August	46.0	NA	NA
	September	46.2	NA	NA

*Average selling prices, purchase prices, and dealer margins represent sales for residential heating oil only.

NA=Not available.

Sources: 1974 through February 1976—Form CLC-92 "No. 2 Heating Oil Monthly Price Adjustment Report;" June 1976 forward—FEA Form P112-M-1 "No. 2 Heating Oil Supply/Price Monitoring Report."

Residential Heating Oil Prices by Region

		New England	Mid- Atlantic	Southeast	East North Central	East South Central	West North Central	West South Central	Mountain	West Coast
		Cents per gallon								
1975	January	40.2	38.9	36.5	33.2	34.7	34.0	NA	37.5	38.0
	February	39.2	38.4	36.8	33.4	34.7	33.3	NA	36.6	37.7
	March	38.0	37.8	36.4	34.2	33.2	34.3	NA	NA	36.8
	April	37.4	36.8	36.8	33.2	33.7	34.5	NA	38.9	36.8
	May	37.6	36.9	36.4	35.1	34.7	35.4	NA	37.0	37.8
	June	37.7	37.7	36.4	35.8	NA	35.9	NA	37.6	37.6
	July	37.9	36.9	36.9	36.4	34.7	36.8	NA	NA	38.8
	August	38.8	38.2	37.9	36.3	35.7	36.3	NA	41.3	39.3
	September	39.4	38.7	37.6	36.5	35.7	36.8	NA	38.9	40.1
	October	40.3	39.9	38.3	37.4	36.6	37.9	NA	39.0	41.0
	November	41.0	39.6	38.7	37.9	NA	38.1	NA	40.2	41.3
	December	41.0	41.1	39.0	38.5	34.1	38.0	NA	44.8	40.9
1976	January	41.5	40.0	39.6	38.3	37.8	38.2	35.0	41.2	41.6
	February	41.4	40.3	39.4	38.0	37.7	38.3	34.4	41.0	42.1
	March	41.5	39.8	39.2	37.0	36.7	37.6	34.5	40.4	41.9
	April	41.2	40.0	38.9	37.1	35.9	37.3	34.6	40.3	40.8
	May	41.1	39.7	38.2	37.1	35.6	37.3	34.0	40.4	42.1
	June	40.9	41.1	39.1	37.7	37.2	37.3	34.3	40.3	42.8
	July	40.7	39.8	39.1	37.9	36.9	37.3	34.4	40.1	45.0
	August	41.5	40.3	39.5	38.2	37.2	37.7	34.3	39.7	44.7
	September	41.9	40.8	37.5	38.3	38.0	38.8	34.8	41.1	46.0
	October	42.3	41.4	40.4	39.0	38.5	38.7	35.1	42.1	46.0
	November	43.3	42.4	42.1	40.1	39.8	39.5	36.3	42.8	46.5
	December	44.4	43.6	42.9	41.5	41.0	41.9	36.3	42.7	43.8
1977	January	45.8	44.9	44.2	43.2	43.1	43.0	36.9	43.4	44.6
	February	46.6	45.8	45.7	43.9	43.4	44.0	38.8	44.2	45.2
	March	47.1	46.3	45.5	44.4	43.8	44.6	40.2	44.7	45.9
	April	47.2	46.5	45.5	44.8	43.3	44.2	40.8	44.8	46.4
	May	47.0	46.4	45.6	44.7	43.7	43.7	40.7	44.8	46.5
	June	47.1	46.4	45.7	44.7	44.0	43.3	41.2	45.8	46.8
	July	47.1	46.4	45.7	44.7	44.2	44.2	41.2	44.2	47.9
	August	47.4	46.6	45.6	44.7	43.7	44.5	41.0	44.9	48.2
	September	47.7	46.7	45.8	45.0	44.2	44.9	41.1	44.9	47.2

NA=Not available.

Note: Data for West South Central Region are based on a sample of less than four reporting firms. Average regional distributor purchase prices for heating oil for the period January 1975 through February 1976 are published on page 70 of the October 1977 issue of the *Monthly Energy Review*. Sources: January through December 1975—Form CLC-92 "No. 2 Heating Oil Monthly Price Adjustment Report;" January 1976 forward—FEA Form P112-M-1 "No. 2 Heating Oil Supply/Price Monitoring Report."

RESIDUAL FUEL OIL
(Dollars per barrel)

NO. 5		NO. 6										BUNKER "C"		TOTAL
		0.0 to 0.3 percent sulfur		0.31 to 1.0 percent sulfur		Greater than 1.0 percent sulfur		Total						
		Whole- sale	Retail	Whole- sale	Retail	Whole- sale	Retail	Whole- sale	Retail	Whole- sale	Retail	Whole- sale	Retail	
1975	July	10.19	11.28	11.57	12.86	10.90	12.05	10.25	10.59	10.66	11.70	7.88	10.54	11.27
	August	10.19	11.04	11.53	13.22	10.85	12.34	9.72	10.53	10.49	11.89	8.76	10.43	11.32
	September	10.58	11.07	11.75	12.94	10.63	11.65	9.87	10.52	10.48	11.52	8.93	10.29	11.09
	October	10.15	11.12	11.50	12.98	10.37	12.09	9.75	10.38	10.30	11.69	8.88	10.31	11.13
	November	10.90	11.27	12.21	12.96	10.33	12.03	9.90	10.34	10.47	11.68	9.01	10.43	11.24
	December	10.83	11.64	11.89	12.87	10.37	11.83	9.65	10.06	10.24	11.42	9.07	10.15	10.97
1976	January	11.08	11.63	12.13	12.39	10.62	11.61	9.57	10.23	10.53	11.35	8.75	10.35	11.02
	February	10.55	11.57	12.42	12.78	10.87	11.84	9.70	10.35	10.73	11.52	8.53	10.27	11.15
	March	10.41	11.89	12.36	12.81	11.05	11.80	9.56	10.21	10.74	11.43	8.59	10.35	11.12
	April	10.21	11.58	11.44	12.34	10.86	11.77	9.53	10.28	10.38	11.43	8.66	10.12	11.02
	May	9.87	11.49	11.71	11.87	10.80	11.40	9.47	9.89	10.11	10.95	8.75	10.65	10.63
	June	9.91	11.23	11.71	12.24	10.33	11.36	9.73	10.03	10.12	11.04	8.57	10.10	10.70
	July	10.06	11.70	11.73	12.12	10.22	11.36	9.83	10.04	10.25	11.04	9.23	10.34	10.74
	August	9.78	11.48	11.85	12.29	10.45	11.46	9.61	10.22	10.20	11.20	8.93	9.98	10.82
	September	10.36	11.37	11.85	12.50	10.33	11.55	10.04	10.28	10.35	11.30	9.22	10.05	10.90
	October	10.40	11.86	11.96	12.85	11.08	11.99	10.00	10.73	10.75	11.82	9.57	10.81	11.38
	November	11.04	12.04	12.41	13.15	11.57	12.21	10.40	10.99	11.16	11.95	10.31	10.88	11.61
	December	11.49	12.64	13.18	13.29	11.80	12.76	11.04	11.48	11.87	12.44	9.95	11.24	12.16
1977	January	12.00	13.20	14.06	14.34	12.79	13.68	11.51	12.32	12.45	13.32	10.34	11.89	12.94
	February	12.28	13.63	14.00	14.60	12.91	14.06	12.04	12.74	12.69	13.71	10.24	12.00	13.21
	March	12.15	13.76	14.00	14.58	13.47	14.51	11.62	12.70	12.68	13.84	9.97	11.74	13.27
	April	11.62	13.26	12.88	14.63	13.05	14.10	11.27	12.50	12.04	13.61	10.14	11.75	12.92
	May	11.54	12.69	13.56	14.48	11.90	13.73	11.05	12.15	11.64	13.42	9.97	11.41	12.67
	June	11.25	13.10	13.12	14.28	11.88	13.27	11.10	11.93	11.72	13.02	10.30	11.39	12.47
	July	11.24	R12.67	13.31	14.38	11.73	13.12	11.02	R12.06	11.62	13.01	R10.91	11.44	12.47
	August*	R11.61	R12.75	R13.32	R14.15	R11.84	13.08	R11.89	R12.01	12.06	13.00	R11.08	11.58	R12.56
	September*	11.65	12.88	13.26	14.32	11.77	12.99	11.78	12.19	12.03	12.94	11.34	12.03	12.58

*Preliminary.

R=Revised data.

Note: Wholesale refers to the price of residual fuel sold to other refiners and resellers, including bulk plants, branded and unbranded jobbers, and other residual dealers. Retail refers to the price at which residual fuel oil is sold to ultimate consumers such as utility, industrial, institutional, commercial, and residential accounts.

Source: FEA Form P302-M-1 "Petroleum Industry Monthly Report for Product Prices."

Aviation Fuels

AVIATION FUELS

(Cents per gallon)

		Aviation Gasoline		Naphtha-Type*	Kerosene-Type	
		Wholesale	Retail	Retail	Wholesale	Retail
1975	July	40.6	40.6	31.4	29.8	29.2
	August	41.3	42.1	30.8	32.1	29.5
	September	41.2	39.9	30.3	31.5	29.6
	October	41.1	41.2	30.2	31.7	30.0
	November	39.7	42.1	30.6	31.6	30.2
	December	40.9	40.9	30.7	31.9	30.5
1976	January	41.4	41.2	31.0	30.6	31.3
	February	41.2	42.0	31.1	31.1	31.2
	March	41.1	41.9	30.9	31.2	30.7
	April	41.2	42.5	30.5	31.9	30.5
	May	42.1	43.1	30.6	33.0	30.2
	June	42.6	42.3	31.5	32.1	30.3
	July	43.6	44.2	31.3	32.9	30.8
	August	43.7	44.1	31.7	32.1	31.1
	September	43.6	44.7	32.1	32.5	31.4
	October	43.6	43.8	32.1	32.5	31.9
	November	43.4	43.9	32.8	33.4	32.4
	December	43.5	43.7	32.9	34.7	32.2
1977	January	43.4	44.1	33.4	34.6	33.2
	February	44.7	45.0	34.0	37.1	34.1
	March	45.0	45.7	34.5	35.9	34.6
	April	46.0	47.2	34.3	35.9	34.9
	May	46.6	47.8	34.3	36.3	35.1
	June	46.7	47.6	35.1	36.8	35.7
	July	47.0	48.7	35.6	37.1	35.8
	August**	47.9	50.0	R35.8	36.6	35.9
	September**	47.9	49.1	35.9	37.1	NA

*Nearly all naphtha-type fuels are sold directly to the Defense Fuel Supply Center. Consequently, wholesale prices are not applicable.

**Preliminary.

R=Revised data.

NA=Not available.

Note: Wholesale refers to the price of aviation fuel sold to refiners and resellers, including bulk plants, branded and unbranded jobbers, and aviation fuel distributors. Retail refers to the price of aviation fuel sold to ultimate consumers, including commercial airline and military accounts.

Source: FEA Form P302-M-1 "Petroleum Industry Monthly Report for Product Prices."

Domestic Crude Petroleum Prices at the Wellhead*

		Old	New	Domestic Average			Lower Tier**	Upper Tier**	Domestic Average		
		Dollars per barrel					Dollars per barrel				
1974	AVG.	5.03	10.13	6.87	1976	February	5.05	11.47		7.87	
						March	5.07	11.39		7.79	
1975	January	5.05	11.28	7.61		April	5.07	11.52		7.86	
	February	5.03	11.39	7.47		May	5.13	11.55		7.89	
	March	5.03	11.47	7.57		June	5.15	11.60		7.99	
	April	5.03	11.64	7.55		July	5.19	11.59		8.04	
	May	5.03	11.69	7.52		August	5.18	11.62		8.03	
	June	5.03	11.73	7.49							
	July	5.03	12.30	7.75							
	August	5.03	12.38	7.73							
	September	5.04	12.46	7.75							
	October	5.03	12.73	7.83			Lower Tier**	Upper Tier**	Actual Stripper†	Actual Domestic Average††	Imputed Domestic Average††
	November	5.03	12.89	7.80							
	December	5.03	12.95	7.93							
							Dollars per barrel				
	AVG.	5.03	12.03	7.67		September	5.17	11.65	13.21	8.39	8.19
						October	5.15	11.62	13.35	8.46	8.23
1976	January	5.02	12.99	8.63		November	5.17	11.62	13.31	8.62	8.40
						December	5.17	11.64	13.30	8.62	8.40
					1977	January	5.17	11.44	13.27	8.50	8.28
						February	5.18	11.39	13.32	8.57	8.33
						March	5.15	11.03	13.31	8.45	8.19
						April	5.15	10.97	13.28	8.40	8.14
						May	5.18	10.98	13.26	8.49	8.23
						June	5.16	10.92	13.28	8.44	8.17
						July	5.16	10.75	13.31	8.48	8.21
						August	5.18	10.42	13.95	8.62	8.25
						September***	5.20	10.35	14.02	8.64	8.26

*See Explanatory Note 15.

****See Definitions.**

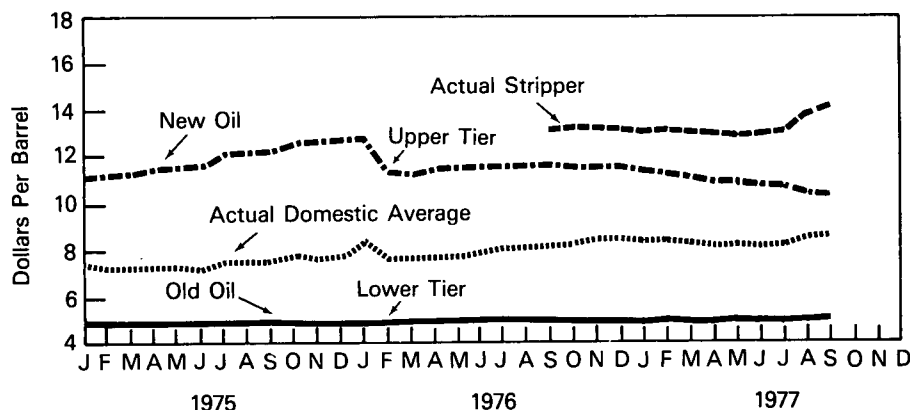
***Preliminary figure based on early reports.

†Stripper oil was exempt from price controls beginning September 1, 1976. From February through August 1976, stripper oil was subject to upper tier price ceilings.

††The actual domestic average price represents the average price at which all domestic crude oil is purchased. The imputed domestic average price is the average price used to establish ceiling prices for domestic crude oil in accordance with the provisions of the Energy Conservation and Production Act. It is calculated as the weighted average of lower tier, upper tier, and an imputed stripper crude oil price. The imputed stripper crude oil price is equal to \$11.63 per barrel plus the difference between the composite price of crude oil in August 1976 (excluding stripper oil) and the composite price of crude oil in the month of measurement (excluding stripper oil).

Sources: 1974 through January 1976—Form FEA-90 "Crude Petroleum Production Monthly Report;" February 1976 forward—FEA Form P124-M-Q "Domestic Crude Oil Purchasers Report."

Crude Oil Wellhead Price



Percentages of Domestic Production Sold at the Wellhead

		Old Oil	New Oil	Released	Stripper
1975	January*	58	19	10	12
	February*	61	17	9	12
	March	60	18	10	12
	April	61	17	9	12
	May	62	17	8	13
	June	63	16	8	13
	July	62	16	8	14
	August	63	16	7	14
	September*	63	15	7	14
	October	63	16	7	14
	November	64	15	7	14
	December	63	16	7	14
	AVERAGE	62	16	8	13
1976	January	54	21	10	15
		Lower Tier	Upper Tier		
	February	56	30	—	14
	March	57	29	—	14
	April	57	29	—	14
	May	57	29	—	14
	June	56	29	—	15
	July	56	30	—	14
	August	56	30	—	14
		Lower Tier	Upper Tier		Stripper
	September	53.4	33.7		12.9
	October	52.4	34.7		12.9
	November	49.9	36.6		13.4
	December	50.1	36.4		13.6
1977	January	50.6	36.7		12.7
	February	49.5	37.2		13.3
	March	49.2	37.2		13.6
	April	49.5	36.9		13.6
	May	48.4	37.6		14.0
	June	48.8	37.0		14.2
	July	46.8	39.9		13.3
	August	43.6	43.2		13.2
	September**	42.7	44.0		13.3

*Totals do not add to 100 due to rounding.

**Preliminary.

Sources: January 1975 through January 1976—Form FEA-90 "Crude Petroleum Production Monthly Report;" February 1976 through August 1976—FEA Form P124-M-0 "Domestic Crude Oil Purchasers Report" for Lower Tier percentages and EIA estimates for Upper Tier percentages; September 1976 forward—FEA Form P124-M-0 "Domestic Crude Oil Purchasers Report" for Lower Tier, Upper Tier, and Stripper percentages.

Crude Oil (Continued)

		Entitlement Price* (Dollars)	National Old Oil Supply Ratio*	Crude Oil Entitlement Benefit* (Dollars)
1974	November	5.00	.411	2.06
	December	5.00	.400	2.00
1975	January	6.00	.352	2.11
	February	6.75	.373	2.52
	March	7.31	.359	2.62
	April	7.29	.390	2.84
	May	7.39	.383	2.83
	June	7.82	.360	2.82
	July	8.13	.354	2.88
	August	8.31	.352	2.93
	September	8.31	.355	2.95
	October	8.62	.356	3.07
	November	8.94	.343	3.07
	December	8.55	.363	3.10
1976	January	8.09	.309	2.50
			National Domestic Crude Oil Supply Ratio	
1976	February	7.85	.352	2.76
	March	7.89	.358	2.82
	April	7.85	.356	2.79
	May	7.82	.356	2.78
	June	7.91	.328	2.59
	July	7.80	.314	2.45
	August	8.02	.319	2.56
	September	7.80	.296	2.31
	October	7.84	.293	2.30
	November	7.90	.273	2.16
	December	7.97	.263	2.10
1977	January	8.30	.266	2.21
	February	8.53	.267	2.28
	March	8.71	.273	2.38
	April	8.69	.285	2.48
	May	8.77	.280	2.46
	June	8.65	.273	2.36
	July	8.77	.258	2.26
	August	8.65	.266	2.30
	September	8.75	.250	2.19

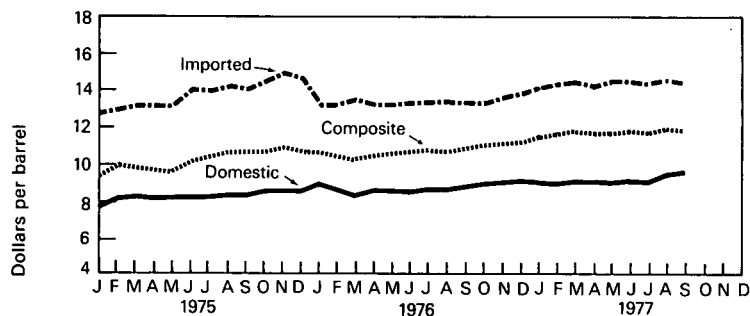
*See Definitions.
Source: DOE.

Refiner Acquisition Cost of Crude Petroleum*

Domestic Imported Composite
Dollars per barrel

1974	AVERAGE	7.18	12.52	9.07
1975	January	7.78	12.77	9.48
	February	8.29	13.05	10.09
	March	8.38	13.28	9.91
	April	8.23	13.26	9.83
	May	8.33	13.27	9.79
	June	8.33	14.15	10.33
	July	8.37	14.03	10.57
	August	8.48	14.25	10.81
	September	8.49	14.04	10.79
	October	8.68	14.66	10.85
	November	8.67	15.04	11.05
	December	8.66	14.81	10.98
	AVERAGE	8.39	13.93	10.38
1976	January	9.14	13.27	10.76
	February	8.67	13.26	10.54
	March	8.48	13.51	10.44
	April	8.66	13.39	10.63
	May	8.62	13.41	10.66
	June	8.60	13.48	10.88
	July	8.72	13.51	10.97
	August	8.65	13.58	10.78
	September	8.95	13.47	11.08
	October	9.13	13.49	11.20
	November	9.23	13.58	11.26
	December	9.25	13.71	11.32
	AVERAGE	8.84	13.48	10.89
1977	January	9.23	14.11	11.64
	February	9.24	14.50	11.80
	March	9.32	14.54	11.88
	April	9.21	14.36	11.75
	May	9.21	14.62	11.87
	June	9.34	14.63	11.98
	July	9.32	14.44	11.90
	August	R9.54	R14.68	R12.01
	September**	9.70	14.47	11.98

Crude Oil Refiner Acquisition Cost



*See Explanatory Note 16.

**Preliminary data.

R=Revised data.

Sources: 1974 through January 1976—Form FEO-96 "Monthly Cost Allocation Report;" February 1976 forward—FEA Form P110-M-1 "Refiners' Monthly Cost Allocation Report."

Crude Oil (Continued)

Estimated Landed Cost of Imported Crude Petroleum From Selected Countries*

		Algeria	Canada	Indonesia	Iran	Nigeria	Saudi Arabia	U.A. Emirates	Venezuela
		Dollars per barrel							
1975	January	12.72	12.43	13.30	12.11	12.07	12.07	13.14	11.37
	February	12.11	12.15	13.52	11.86	12.18	11.94	12.67	11.56
	March	12.46	12.79	13.94	12.08	12.56	11.78	13.40	11.66
	April	12.36	12.95	13.71	12.34	12.46	12.16	12.55	11.61
	May	12.41	12.08	13.71	11.93	12.34	12.27	13.29	11.54
	June	12.37	11.90	13.73	12.51	12.49	11.93	12.48	11.51
	July	12.69	12.15	13.98	11.83	12.37	12.08	12.78	11.46
	August	12.68	12.27	13.85	12.17	12.32	12.10	12.60	11.44
	September	12.52	12.63	13.75	11.97	12.42	12.17	12.49	11.42
	October	13.45	13.02	14.00	12.27	13.18	12.64	12.85	12.08
	November	13.28	14.00	13.81	12.47	13.37	12.58	13.23	12.38
	December	13.46	13.96	13.92	13.01	13.57	12.93	13.21	12.31
1976	January	13.56	12.95	13.89	13.01	13.61	13.18	13.50	11.60
	February	13.57	13.24	13.94	12.87	13.52	13.21	13.36	12.09
	March	13.83	13.30	13.94	12.77	13.62	13.18	13.37	11.71
	April	13.73	13.61	13.78	12.91	13.60	13.11	13.18	11.95
	May	13.47	13.62	13.84	12.82	13.62	13.05	13.39	11.61
	June	13.75	14.19	13.84	13.00	13.78	13.14	13.09	11.55
	July	13.77	13.79	13.80	12.76	13.81	13.02	13.45	11.44
	August	13.91	13.78	13.78	13.09	13.87	13.03	13.23	11.77
	September	14.03	13.70	13.80	12.78	13.82	12.87	13.44	11.98
	October	13.81	13.71	13.84	12.73	13.99	12.87	13.22	11.84
	November	13.84	13.59	13.77	12.58	13.95	13.01	13.18	12.01
	December	14.14	13.52	13.75	12.69	14.11	13.02	13.29	12.19
1977	January	14.80	13.92	14.42	13.16	14.97	13.22	13.56	13.29
	February	15.18	13.74	14.57	13.56	15.12	13.32	13.46	13.76
	March	15.08	14.34	14.64	13.94	15.13	13.50	13.80	13.41
	April	15.21	14.02	14.70	13.95	15.37	13.41	13.78	13.19
	May	15.20	14.94	14.59	13.94	15.40	13.49	13.85	13.10
	June	15.34	14.49	14.63	13.81	15.37	13.39	13.72	13.06
	July	15.29	13.91	14.75	13.84	15.39	13.64	14.20	13.02
	August	15.24	14.24	14.65	13.99	15.25	13.72	14.36	12.82
	September	15.29	14.14	14.62	13.77	15.34	14.01	14.41	13.08

*See Explanatory Note 17.

Source: FEA Form F701-M-O "Transfer Pricing Report."

Unrecouped Costs for Refined Products for 30 Largest Refiners

		Distillate*	Motor Gasoline	Aviation Jet Fuel**	Other Products	Total
		Millions of dollars				
1975	January	254	431	—	672	1,357
	February	300	418	—	790	1,508
	March	282	452	—	966	1,700
	April	302	485	—	807	1,594
	May	292	370	—	771	1,433
	June	284	266	—	785	1,334
	July	233	219	—	624	1,075
	August	280	344	—	583	1,208
	September	347	335	—	661	1,342
	October	338	245	—	673	1,255
	November	426	275	—	796	1,497
	December	446	211	—	826	1,483
1976	January	336	242	131	515	1,224
	February	279	336	145	456	1,216
	March	263	316	163	456	1,198
	April	237	398	180	524	1,339
	May	264	632	161	446	1,503
	June	—	628	135	349	1,112
	July	—	587	129	384	1,100
	August	—	679	125	352	1,156
	September	—	619	134	340	1,093
	October	—	733	151	372	1,256
	November	—	796	168	368	1,332
	December	—	723	139	317	1,179
1977	January	—	901	166	325	1,392
	February	—	1,038	187	303	1,528
	March	—	956	180	287	1,423
	April	—	1,029	194	343	1,566
	May	—	968	199	328	1,495
	June	—	956	232	347	1,535
	July	—	869	210	387	1,466
	August	—	R735	R208	R454	R1,397
	September***	—	761	182	452	1,395

*Includes No. 2 heating oil and No. 2 diesel fuel only. After May 1976, reporting of the distillate bank is no longer required due to decontrol of middle distillates.

**Prior to January 1976 refiners were not required to maintain separate banks for aviation jet fuel.

***Preliminary.

R=Revised data.

Source: FEA Form P110-M-1 "Refiners' Monthly Cost Allocation Report."

Natural Gas

Natural Gas Prices Reported by Major Interstate Pipeline Companies

		PURCHASES			SALES		
		From Domestic Producers	From Canadian and Mexican Sources	Total Purchases	To Industrial Users*	To Resellers**	Total Sales
Cents per thousand cubic feet							
1975	January	30.4	104.0	35.8	67.8	70.9	71.2
	February	29.5	105.9	35.2	70.1	74.0	74.3
	March	33.5	102.5	38.8	70.4	77.7	77.8
	April	32.8	102.8	38.3	71.1	82.3	81.9
	May	34.7	100.6	39.8	71.1	83.7	82.8
	June	35.3	98.9	40.2	72.2	85.1	83.9
	July	36.7	101.1	41.7	73.9	84.6	83.6
	August	35.5	141.0	43.3	73.4	86.5	85.1
	September	36.5	141.1	44.4	72.8	85.9	84.7
	October	36.0	140.1	44.3	77.2	85.9	85.4
	November	36.5	162.5	46.7	77.8	86.9	86.6
	December	35.9	161.8	46.0	81.1	79.6	80.1
1976	January	38.6	164.0	48.6	87.5	88.7	89.2
	February	39.5	165.3	49.5	87.7	92.3	92.7
	March	39.5	164.5	49.7	86.4	89.8	90.2
	April	40.6	164.3	51.2	88.6	100.2	99.7
	May	42.4	165.1	52.5	86.9	98.3	97.6
	June	43.7	166.6	53.7	89.5	98.2	98.5
	July	43.6	168.4	53.2	94.3	101.8	101.1
	August	56.4	167.7	65.3	97.8	104.8	104.1
	September	68.5	183.7	77.7	103.5	92.5	94.1
	October	57.4	190.1	68.8	106.4	105.4	105.7
	November	52.6	182.4	63.3	112.9	106.1	106.9
	December	54.0	189.4	65.2	131.3	117.3	118.8
1977	January	58.8	201.8	71.5	143.1	124.4	125.4
	February	63.5	199.0	76.5	131.0	130.0	130.7
	March	69.8	200.4	83.4	129.8	132.2	132.5
	April	65.2	190.7	76.4	116.8	130.9	131.4
	May	69.1	191.3	80.4	128.4	133.9	133.6

*Represents direct sales by pipeline companies to industrial users. Does not include sales to industrial users by resellers.

**Includes the cost of gas to the distributing utility at entrance of distribution system or point of receipt.

Source: Federal Power Commission Form 11, "Natural Gas Pipeline Company Monthly Statement."

Intrastate Natural Gas Prices for Selected States by Type of Contract*

	California		Kansas		Louisiana		Oklahoma		Texas	
	New Contracts	Renego- tiated or Amended	New Contracts	Renego- tiated or Amended	New Contracts	Renego- tiated or Amended	New Contracts	Renego- tiated or Amended	New Contracts	Renego- tiated or Amended
Cents per thousand cubic feet										
1975										
January	75.00	76.89	55.30	—	98.04	102.96	95.99	76.03	139.90	164.04
February	—	—	—	—	128.68	113.06	97.30	64.49	154.72	163.11
March	—	—	—	—	115.78	125.89	107.70	55.05	96.66	97.50
April	—	—	64.65	45.24	149.78	134.81	132.58	87.79	160.09	176.32
May	—	—	—	—	126.80	123.53	129.31	106.56	156.72	158.59
June	—	53.68	65.00	—	130.91	129.57	94.22	120.29	165.00	187.54
July	—	65.51	—	—	117.22	125.63	133.87	114.62	183.22	178.22
August	—	75.00	198.24	—	132.87	114.20	136.77	121.21	151.87	132.50
September	—	86.00	152.89	70.38	121.89	141.23	143.73	106.69	169.87	180.77
October	135.53	—	—	—	75.16	117.60	143.09	144.14	168.10	187.30
November	—	—	157.95	139.02	138.42	71.65	140.61	133.15	149.43	182.17
December	—	—	—	80.00	139.64	131.92	132.50	153.86	187.20	140.90
1976										
January	—	83.97	103.81	84.54	138.75	131.23	149.87	109.39	181.05	193.31
February	—	40.00	—	109.68	125.00	145.30	133.72	146.71	176.63	191.54
March	—	—	150.36	—	145.66	155.39	162.83	168.57	178.70	176.44
April	195.00	—	150.00	—	142.99	154.05	162.12	148.30	202.60	152.95
May	122.00	60.39	180.39	149.84	125.54	106.05	156.35	164.02	154.00	197.22
June	—	—	114.45	150.82	147.11	137.67	169.56	168.14	178.01	192.98
July	—	117.15	137.57	150.83	127.55	141.71	148.20	95.00	151.19	176.23
August	—	97.38	—	—	138.70	164.23	151.81	171.49	157.98	198.81
September	—	—	—	125.68	164.10	156.39	164.85	172.00	184.07	197.66
October	—	—	—	111.72	144.64	149.91	163.48	161.16	196.58	188.80
November	—	—	150.82	144.21	—	131.91	162.57	90.73	186.80	182.82
December	—	97.47	160.73	—	194.51	152.45	167.55	175.98	198.71	202.54
1977										
January	—	105.58	155.49	—	155.82	137.65	172.35	167.49	193.36	204.06
February	—	107.27	121.66	—	141.33	120.84	147.86	131.27	185.55	203.22
March	119.79	116.28	148.18	—	219.43	208.97	168.57	168.28	197.14	190.83
April	—	—	137.10	156.38	216.41	150.35	165.61	167.89	192.22	205.44
May	—	107.20	119.00	—	197.53	158.97	156.52	171.09	204.06	201.27
June	—	112.21	91.49	—	180.21	169.61	166.69	169.51	194.54	206.41
July	—	139.02	88.57	174.53	174.90	169.64	172.95	168.25	206.96	202.46
August	—	—	131.97	90.49	177.99	166.66	164.33	158.46	188.96	183.57
September	—	—	—	136.66	163.72	162.49	171.78	172.70	167.14	212.44

*Prices are for FPC jurisdictional natural gas companies selling more than 1 billion cubic feet per year in interstate commerce.
Source: Federal Power Commission Form 45, "Summary of Intrastate Natural Gas Prices."

Natural Gas (Continued)

Average Retail Prices for Natural Gas Sold to Residential Customers for Heating Use

		Cents per thousand cubic feet
1975	January	141.2
	February	144.7
	March	146.1
	April	150.6
	May	153.7
	June	155.7
	July	154.7
	August	155.4
	September	159.4
	October	160.6
	November	166.2
	December	170.2
1976	January	171.4
	February	175.2
	March	177.0
	April	178.4
	May	180.8
	June	183.2
	July	184.5
	August	185.8
	September	191.2
	October	195.0
	November	198.3
	December	208.3
	AVERAGE	185.8
1977	January	213.8
	February	217.0
	March	219.9
	April	223.7
	May	227.0
	June	227.3
	July	229.9
	August	230.1
	September	230.4
	October	235.1

Source: Bureau of Labor Statistics.

Utility Fossil Fuels

U.S. Average Delivered Prices of Coal at Utilities

		Contract	Spot
		Dollars per short ton	
1975	January	14.57	28.12
	February	15.71	25.93
	March	15.68	25.02
	April	15.88	24.52
	May	16.45	23.78
	June	16.40	23.36
	July	16.06	22.35
	August	16.65	22.39
	September	16.76	22.46
	October	16.72	22.52
	November	16.79	22.50
	December	16.90	22.40
1976	January	16.53	21.75
	February	17.04	21.23
	March	17.65	21.36
	April	17.76	21.43
	May	18.12	21.17
	June	18.05	20.88
	July	17.93	21.00
	August	18.19	21.35
	September	18.55	21.46
	October	18.49	21.28
	November	18.26	21.56
	December	18.15	21.49
1977	January	17.87	21.93
	February	18.28	22.71
	March	18.75	23.27
	April	18.82	22.41
	May	18.97	23.73
	June	19.03	24.62

Source: Federal Power Commission Form 423.

Utility Fossil Fuels (Continued)

COST OF FOSSIL FUELS DELIVERED TO STEAM ELECTRIC UTILITY PLANTS

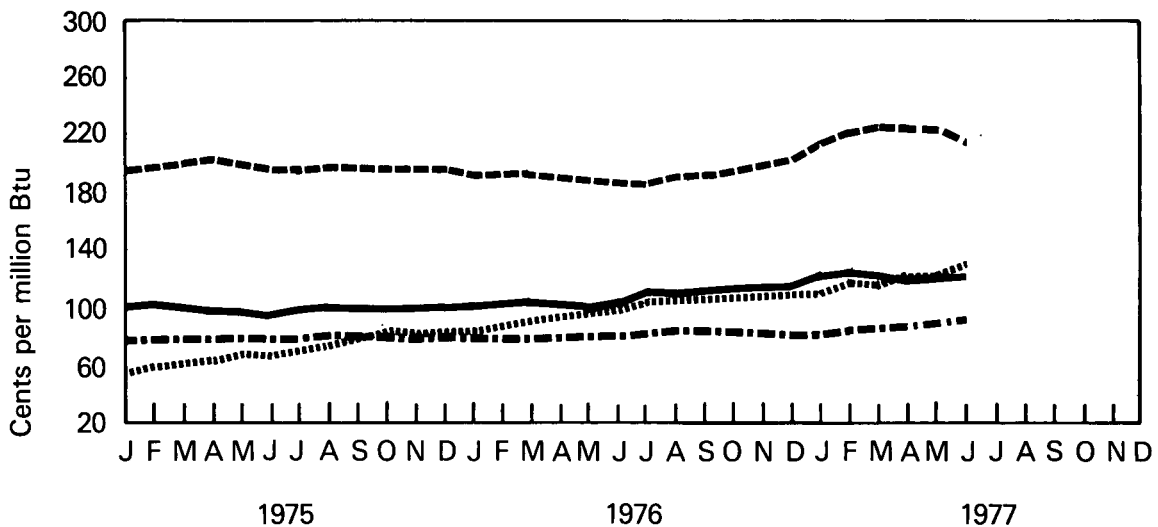
All Fossil Fuels*

Region	1976							1977					
	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Cents per million Btu													
New England	174.2	172.4	173.7	176.6	184.0	186.9	197.0	207.7	211.4	225.3	213.9	215.1	213.3
Middle Atlantic	137.9	144.5	140.2	135.2	136.8	139.8	146.5	161.8	162.1	152.2	149.9	149.4	152.1
East North Central	93.8	100.9	97.6	95.2	95.8	96.8	94.4	104.1	102.7	104.0	102.6	103.9	107.3
West North Central	69.1	70.8	75.1	76.1	73.5	76.1	78.5	85.4	85.3	82.0	79.0	82.5	84.0
South Atlantic	118.9	130.7	126.2	125.6	127.2	129.1	134.7	146.5	142.5	137.3	132.7	133.8	137.9
East South Central	90.0	93.2	94.6	94.4	93.8	92.3	96.7	99.8	101.8	100.1	100.3	102.3	104.5
West South Central	98.6	101.2	102.9	102.4	101.6	106.2	106.9	113.6	119.8	116.9	117.5	117.2	124.3
Mountain	53.0	55.4	57.9	55.3	55.4	54.2	53.9	53.0	55.2	60.4	64.3	68.8	69.9
Pacific	177.2	180.2	195.7	195.9	199.1	214.5	218.9	219.2	213.6	209.8	217.6	219.0	212.6
NATIONAL AVG.	107.0	113.2	112.9	110.7	111.1	115.2	118.6	126.8	128.4	123.5	122.0	123.1	125.1

*See Explanatory Note 18.

Source: Federal Power Commission Form 423.

National Average



- All fossil fuels
- - - Coal
- . - Residual fuel oil
- Natural gas

Coal

Region	1976							1977					
	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Cents per million Btu													
New England	122.3	127.9	127.8	125.4	125.6	125.6	124.4	127.6	126.8	127.5	127.9	128.1	130.1
Middle Atlantic	102.5	107.5	103.3	102.6	102.6	100.2	101.2	105.9	101.2	100.8	102.5	103.1	107.4
East North Central	86.6	92.4	90.9	89.8	89.2	90.2	90.7	90.7	91.5	94.1	93.9	94.3	95.5
West North Central	64.7	65.3	70.1	71.0	69.3	69.6	67.6	66.5	68.4	71.5	72.5	75.5	77.0
South Atlantic	100.7	104.4	103.5	103.4	105.4	103.8	104.1	105.4	106.5	108.1	108.4	110.9	113.9
East South Central	84.5	85.5	85.7	87.2	88.3	87.4	90.6	91.2	94.1	93.6	96.5	95.8	95.0
West South Central	27.3	32.4	36.4	42.4	43.7	51.5	56.6	58.8	61.1	64.3	60.2	60.3	63.9
Mountain	35.9	35.3	36.8	36.2	38.2	39.1	38.1	37.6	38.9	41.1	42.4	46.3	47.4
Pacific	75.2	75.8	75.7	75.7	76.0	75.6	74.5	77.6	80.5	74.0	70.8	70.9	71.2
NATIONAL AVG.	84.6	85.7	86.4	86.9	86.9	86.6	86.6	85.9	88.0	89.9	90.1	91.8	93.3

Residual Fuel Oil*

Region	1976							1977					
	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Cents per million Btu													
New England	177.8	175.4	182.8	179.5	188.1	192.0	198.9	213.6	223.5	231.7	218.5	223.4	216.2
Middle Atlantic	187.3	184.3	189.3	190.0	199.5	200.5	208.3	220.5	235.8	237.2	230.8	227.7	223.1
East North Central	211.8	214.8	222.8	221.4	225.8	223.9	227.9	247.5	267.7	257.8	256.3	250.9	248.6
West North Central	148.8	151.3	148.4	149.6	156.8	167.9	191.5	201.0	210.3	205.5	298.7	193.6	186.6
South Atlantic	171.9	174.1	176.6	180.4	184.1	189.2	197.0	212.4	213.7	222.8	217.8	211.7	210.1
East South Central	166.9	171.0	171.3	163.8	166.6	167.8	166.4	166.2	182.7	180.4	180.5	175.7	177.7
West South Central	176.4	173.3	178.6	166.4	176.6	180.3	179.9	192.0	198.1	201.9	200.3	198.3	194.3
Mountain	212.4	217.2	224.8	213.0	221.9	209.3	181.2	201.0	210.9	220.9	220.6	224.9	215.3
Pacific	229.1	228.7	228.8	230.2	231.2	234.1	233.4	231.3	231.0	232.1	235.8	235.2	235.7
NATIONAL AVG.	187.4	187.0	191.8	191.9	198.8	203.5	207.5	217.2	223.3	228.0	226.2	227.7	217.8

Natural Gas**

Region	1976							1977					
	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE
Cents per million Btu													
New England	153.7	154.1	153.9	154.4	155.4	185.2	186.1	200.1	200.1	200.1	200.1	195.9	193.9
Middle Atlantic	108.0	114.8	114.5	122.7	125.2	111.9	127.8	211.3	349.8	155.9	155.4	154.7	144.2
East North Central	139.8	138.2	147.8	148.4	153.0	168.8	188.9	186.5	174.7	170.6	184.7	176.7	177.3
West North Central	78.1	78.4	81.4	81.9	80.8	84.1	84.0	86.1	93.4	88.8	96.0	102.9	104.8
South Atlantic	83.1	88.7	82.9	88.3	89.3	89.1	90.4	80.4	112.1	93.6	85.7	76.2	74.4
East South Central	123.0	136.9	132.5	137.7	158.5	162.2	160.8	165.1	170.3	157.8	154.7	139.7	134.3
West South Central	98.1	100.4	101.6	101.8	101.0	106.6	106.8	108.1	114.6	111.2	113.7	116.5	122.1
Mountain	89.5	90.8	101.7	104.3	112.2	118.2	136.0	133.3	115.0	129.1	134.9	134.4	132.9
Pacific	147.6	146.6	155.3	166.5	169.0	177.5	188.7	196.8	189.2	181.0	204.5	208.9	200.5
NATIONAL AVG.	104.4	106.2	106.5	109.8	109.9	113.1	111.3	111.1	123.5	121.1	125.6	125.6	130.5

*See Explanatory Note 18.

**Includes small quantities of coke oven gas, refinery gas, and blast furnace gas.

Source: Federal Power Commission Form 423.

International

Petroleum Consumption

During the first 9 months of 1977, France and Italy recorded reduced petroleum consumption rates compared with the same 9-month period of 1976 (France, down 5.6 percent; and Italy, down 4.7 percent). West Germany and United Kingdom consumption for the first 8 months of the year, on the other hand, increased 9.8 percent and 1.3 percent, respectively, over the level for the comparable 1976 period. Seven-month data are available for Japan, Canada, and the International Energy Agency (IEA), with all reporting increased consumption. Petroleum consumption in Japan rose by 6.3 percent; Canada, 1.5 percent; total IEA (excluding France which is not a member), 5.4 percent; and "Other" IEA (excluding the United States), 4.0 percent.

Crude Oil Production

Total world crude oil production was 59.9 million barrels per day in September, 1.1 million barrels per day more than the revised August figure. The Organization of Petroleum Exporting Countries (OPEC), primarily Iraq, Kuwait, Saudi Arabia, and Iran, accounted for nearly all of the increase. As a result, the OPEC shut in capacity dropped to 17.5 percent.

Petroleum Consumption

Petroleum Consumption for Major Free World Industrialized Countries

		Total IEA*	Japan**	West Germany	France***	United Kingdom	Canada	Italy†	Other IEA††
Thousands of barrels per day									
1973	AVG.	33,600	5,000	2,693	2,219	1,974	1,597	1,525	3,467
1974	AVG.	32,390	4,872	2,408	2,094	1,857	1,630	1,521	3,449
1975	Jan	34,100	4,729	2,183	2,190	1,981	1,691	1,792	3,741
	Feb	34,100	5,191	2,455	2,243	1,907	1,872	1,767	3,825
	Mar	31,600	4,918	2,234	1,952	1,731	1,558	1,558	3,285
	Apr	31,200	4,202	2,431	2,202	1,826	1,592	1,530	3,578
	May	28,600	4,041	2,253	1,640	1,482	1,471	1,174	3,058
	June	29,300	4,135	2,106	1,642	1,416	1,550	1,289	3,195
	July	29,400	4,265	2,319	1,491	1,322	1,493	1,234	2,961
	Aug	29,200	4,234	2,360	1,300	1,208	1,449	1,105	3,082
	Sept	30,400	4,543	2,309	1,785	1,501	1,469	1,465	3,338
	Oct	31,000	4,409	2,328	1,917	1,707	1,555	1,679	2,981
	Nov	31,000	4,747	2,361	2,077	1,723	1,577	1,448	3,423
	Dec	35,100	5,447	2,502	2,658	1,821	1,880	1,600	3,863
	AVG.	31,235	4,568	2,319	1,925	1,633	1,595	1,468	3,382
1976	Jan	35,100	4,941	2,464	2,432	1,679	1,785	1,775	3,943
	Feb	34,400	5,246	2,497	2,492	1,865	1,754	1,743	3,991
	Mar	34,300	5,165	2,747	2,372	1,879	1,747	1,641	3,907
	Apr	31,500	4,526	2,339	2,116	1,716	1,518	1,423	3,457
	May	29,900	4,218	R2,320	1,795	1,417	1,509	1,253	R3,221
	June	31,300	4,429	R2,393	1,603	1,416	1,560	1,236	R3,479
	July	31,100	4,416	2,624	1,624	1,346	1,531	R1,355	R3,331
	Aug	31,100	4,461	R2,515	1,668	1,276	1,585	R1,372	R3,401
	Sept	32,200	4,517	2,521	1,966	1,477	1,514	R1,604	R3,818
	Oct	32,300	4,523	2,391	1,908	1,544	1,560	1,464	3,780
	Nov	35,900	5,160	2,700	2,204	1,750	1,822	1,393	4,233
	Dec	39,100	5,846	2,571	2,687	1,869	2,008	1,779	4,593
	AVG.	33,180	4,786	2,507	2,071	1,603	1,658	R1,503	R3,761
1977	Jan	37,800	5,428	2,389	2,518	1,830	1,797	1,683	4,191
	Feb	38,700	6,019	2,441	R2,386	1,844	1,919	1,809	4,241
	Mar	35,100	5,540	2,519	2,109	1,818	1,664	1,548	3,955
	Apr	R32,800	R4,713	2,425	2,044	1,670	1,526	R1,319	R3,486
	May	R31,300	R4,313	2,359	1,846	R1,546	R1,523	R1,255	R3,345
	June	R32,400	R4,480	2,495	R1,715	R1,454	R1,633	R1,327	R4,011
	July	32,000	4,700	R2,381	R1,348	1,302	1,530	1,233	3,157
	Aug	NA	NA	R2,468	R1,390	1,342	NA	1,135	NA
	Sept	NA	NA	NA	1,781	NA	NA	1,483	NA
	AVG.	34,254	5,018	R2,434	1,899	1,598	1,653	1,418	3,763
	(Year to date)								

*The 19 signatory nations of the International Energy Agency (IEA) are: Austria, Belgium, Canada, Denmark, Federal Republic of Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States. Except for the United States, inland consumption excludes bunkers, refinery fuel, and losses.

**Excludes liquefied petroleum gases and condensates.

***Not a member of IEA.

†Principal products only.

††Excludes the United States.

NA=Not available.

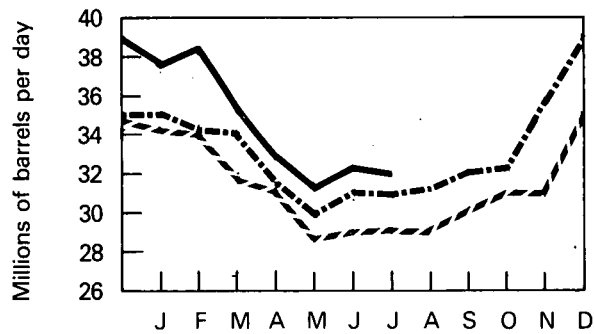
R=Revised data.

Note: All Total IEA, Other IEA, and recent figures are estimates.

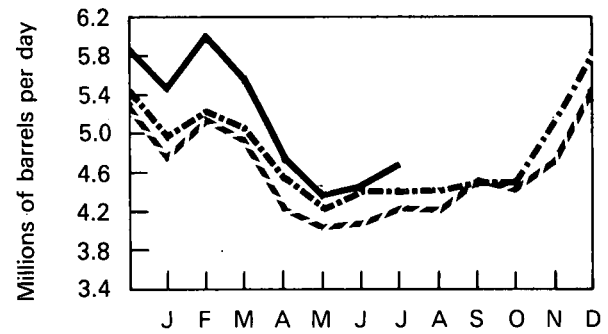
Source: Central Intelligence Agency, National Foreign Assessment Center, *International Energy Biweekly Statistical Review*, 16 November 1977.

Petroleum Consumption

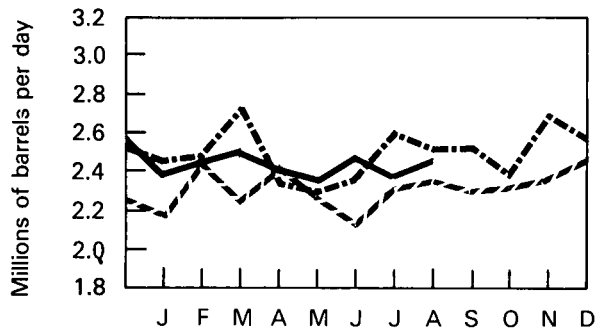
Total IEA



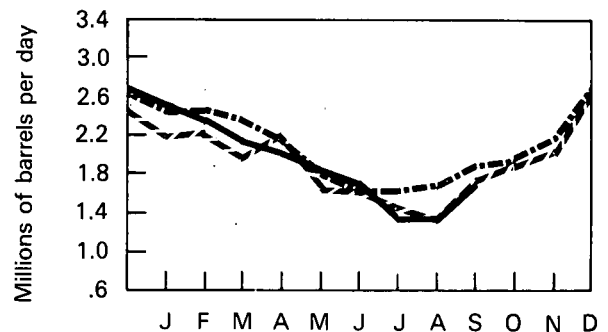
Japan*



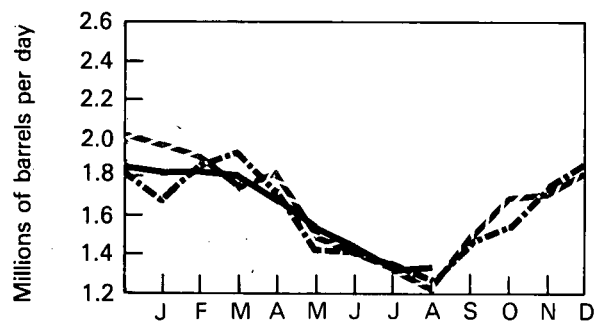
West Germany



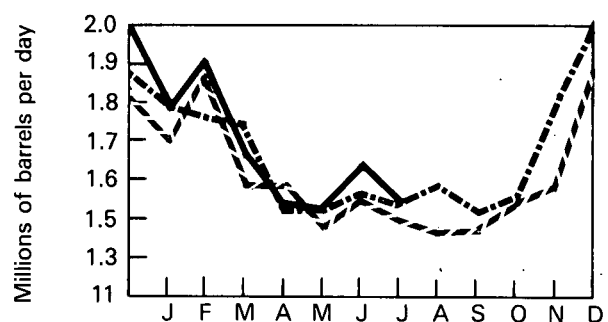
France**



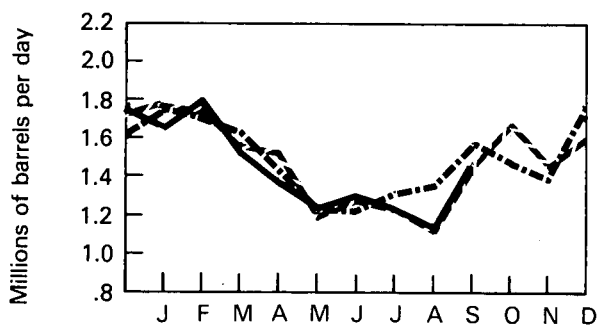
United Kingdom



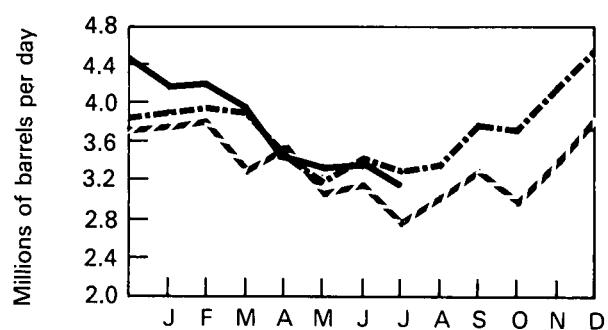
Canada



Italy***



Other IEA†



*Excludes liquefied petroleum gases and condensates.

**Not a member of IEA.

***Principal products only.

†Excludes the United States.

--- 1975
- - - 1976
— 1977

Crude Oil Production

Crude Oil Production for Major Petroleum Exporting Countries—August 1977

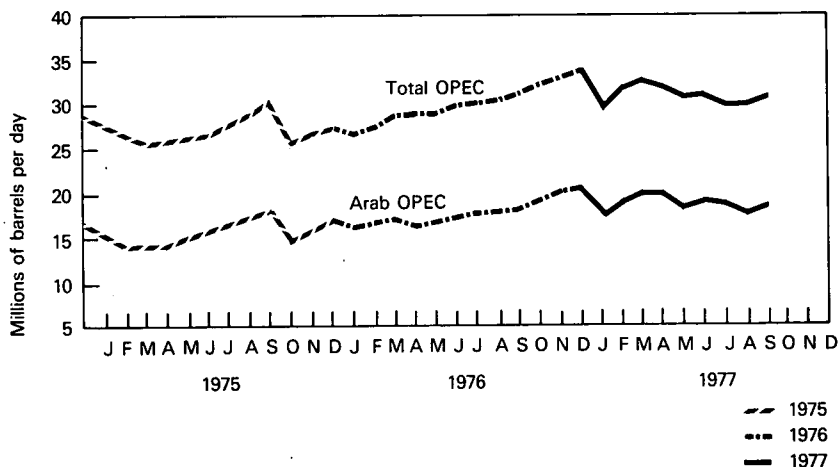
Country	Production						Production Capacity	Production Shut in
	1972 Year	1973 Year	1974 Year	1975 Year	1976 Year	1977 September**	September	September
	Thousands of barrels per day							Percent
Algeria	1,040	1,070	960	960	990	950	1,100	13.6
Iraq	1,465	2,020	1,970	2,260	R2,420	2,300	3,000	23.3
Kuwait*	3,283	3,020	2,545	2,085	2,150	2,280	3,500	34.8
Libya	2,239	2,175	1,520	1,480	1,930	2,030	2,500	18.8
Qatar	482	570	520	440	490	340	700	51.4
Saudi Arabia*	6,016	7,595	8,480	7,075	8,580	8,690	10,500	17.2
United Arab Emirates	1,202	1,535	1,680	1,665	1,940	1,990	2,390	16.7
Subtotal: Arab OPEC	15,727	17,985	17,675	15,965	R18,500	18,580	23,690	21.6
Ecuador	78	210	175	160	190	140	225	37.8
Gabon	125	150	200	225	220	230	250	8.0
Indonesia	1,080	1,340	1,375	1,305	1,500	1,670	1,800	7.2
Iran	5,023	5,860	6,020	5,350	R5,900	5,970	6,700	10.9
Nigeria	1,815	2,055	2,255	1,785	2,070	2,030	2,300	11.7
Venezuela	3,219	3,365	2,975	2,345	2,290	2,360	2,600	9.2
Subtotal: Non-Arab OPEC	11,340	12,980	13,000	11,170	R12,170	12,400	13,875	10.6
TOTAL OPEC	27,067	30,965	30,675	27,135	R30,670	30,980	37,565	17.5
Canada	1,540	1,800	1,695	1,460	1,300	1,210	1,800	32.8
Mexico	440	465	580	720	850	1,020	1,100	7.3
TOTAL OPEC, Canada, Mexico	29,047	33,230	32,950	29,315	R32,820	33,210	40,465	17.9
TOTAL WORLD	50,550	55,755	55,875	52,990	R57,350	59,900		

*Includes about one-half of the former Kuwait-Saudi Arabia Neutral Zone. Production in September 1977 amounted to approximately 380,000 barrels per day.

**Estimated.

Sources: Central Intelligence Agency, National Foreign Assessment Center, *International Energy Biweekly Statistical Review*, 16 November 1977, and National Energy Board of Canada.

OPEC Countries Crude Oil Production



Definitions

Base Production Control Level

1. Prior to February 1, 1976: the total number of barrels of domestic crude oil produced and sold from a particular property in the same month of 1972. If domestic crude oil was not produced and sold from that property in every month of 1972, the total number of barrels of domestic crude oil produced and sold from that property in 1972, divided by 12.
2. Effective February 1, 1976: the total number of barrels of old crude oil produced and sold from the property during calendar year 1975, divided by 365, and multiplied by the number of days in the particular month during 1975. A producer may elect to use the total number of barrels of crude oil produced and sold from the property during calendar year 1972, divided by 366, and multiplied by the number of days in the particular month during 1972.

Branded Independent Marketer

A firm which is engaged in the marketing or distribution of refined petroleum products pursuant to (1) an agreement or contract with a refiner (or a firm which controls, is controlled by, or is under common control with such refiner) to use a trademark, trade name, service mark, or other identifying symbol or name owned by such refiner (or any such firm), or (2) an agreement or contract under which any such firm engaged in the marketing or distribution of refined petroleum products is granted authority to occupy premises owned, leased, or in any way controlled by a refiner (or firm which controls, is controlled by, or is under common control with such refiner), but which is not affiliated with, controlled by, or under common control with any refiner (other than by means of a supply contract, or an agreement or contract described in parts (1) and (2) of this definition), and which does not control such refiner.

Ceiling Price

The maximum permissible selling price, prior to February 1, 1976, for a particular grade of domestic crude oil in a particular field is the May 15, 1973, posted price plus \$1.35 per barrel.

Controlled Crude Oil

Crude oil that was domestically produced prior to February 1, 1976, subject to the ceiling price for crude oil. For a particular property which is not a stripper well lease, the volume of controlled oil equals the base production control level minus an amount of released oil equal to the new oil production from that property.

Crude Oil Domestic Production

Domestic crude oil production is measured at the wellhead and includes lease condensate, which is a natural gas liquid recovered from lease separators or field facilities.

Crude Oil Entitlement Value

The average value a refiner receives from the entitlement program for each incremental barrel of imported crude oil.

It is calculated by multiplying the entitlement price by the National Old Oil Supply Ratio for November 1974 through January 1976 and by the National Domestic Crude Oil Supply Ratio for February 1976 forward.

Crude Oil Imports

The volume of crude oil imported into the 50 States and the District of Columbia, including imports from U.S. territories, but excluding imports of crude oil into the Hawaiian Foreign Trade Zone.

Crude Oil Input to Refineries

Total crude oil used as input for the refining process, less crude oil lost or used for refinery fuel.

Crude Oil Stocks

Stocks of crude oil and lease condensate held at refineries, pipeline terminals, and on leases.

Cumulative Deficiency

A measure of the cumulative deficit of production below the base production control level after the first month in which new oil was produced and sold from a specific property.

Dealer Tankwagon (DTW) Price

The price at which a dealer purchases gasoline from a distributor or a jobber.

Distillate Fuel Oil

The lighter fuel oils distilled off during the refining process. Included are products known as ASTM grades Nos. 1 and 2 heating oils, diesel fuels, and No. 4 fuel oil. The major uses of distillate fuel oils include heating, fuel for on- and off-highway diesel engines, and railroad diesel fuel. Minor quantities of distillate fuel oils produced and/or held as stocks at natural gas processing plants are not included in this series.

Domestic Demand for Specific Refined Petroleum Products

A calculated value, computed as domestic production plus net imports (imports less exports), less the net increase in primary stocks. It, therefore, represents the total disappearance of refined products from primary supplies. (See definition for Domestic Demand for Total Refined Petroleum Products.)

Domestic Demand for Total Refined Petroleum Products

Total domestic demand for petroleum products is calculated as inputs to refineries, plus estimated refinery gain, plus hydrogen input, plus natural gas plant liquids production, plus direct use of crude as fuel, plus product imports, less product exports, plus or minus stock change of products. (See definition for Domestic Demand for Specific Refined Petroleum Products.)

Electricity Production

Production at electric utilities only. Does not include industrial electricity generation.

Entitlement Position

The monthly entitlement position of a refiner indicates whether he bought or sold entitlements in that month. An entitlement is the right to process "deemed old oil," which is the sum of a refiner's receipts of "old" oil and a fraction of his receipts of "upper tier" crude oil. This fraction is set monthly by ERA. A refiner must purchase entitlements for the amount of his "deemed old oil" receipts in excess of the national domestic crude oil supply ratio (NDCOSR). The NDCOSR, as calculated by ERA, reflects the differences in costs to refiners of "old" oil, "upper tier" crude oil, and imported crude oil.

Entitlement Price

The price of an entitlement, fixed by ERA, is the exact differential as reported for the month between the weighted average delivered cost per barrel to refiners of both imported crude oil and stripper crude oil, and the weighted average delivered cost per barrel to refiners of "old oil," less 21 cents.

Firm Natural Gas Service

High priority gas service in which the pipeline company is under contract to deliver a specified volume of gas to the customer on a non-interruptible basis. Residential and small commercial facilities usually fall into this category.

Interruptible Natural Gas Service

Low priority gas service in which the pipeline company has the contractual option to temporarily terminate deliveries to customers by reason of claim of firm service customers or higher priority users. Large commercial facilities, industrial users, and electric utilities usually fall into this category.

Jet Fuel

Includes both naphtha-type and kerosene-type fuels meeting standards for use in aircraft turbine engines. Although most jet fuel is used in aircraft, some is used for other purposes, such as for generating electricity in gas turbines.

Jobber

A petroleum distributor who purchases refined product from a refiner or terminal operator for the purpose of reselling to retail outlets and commercial accounts or for the purpose of retailing through his own retail outlets.

Jobber Margin

The difference between the price at which a jobber purchases refined product from a refiner or terminal operator and the price at which the jobber sells to retail outlets. This does not reflect margins obtained by jobbers through retail sales or commercial accounts.

Jobber Price

The price at which a petroleum jobber purchases refined product from a refiner or terminal operator.

Landed Cost

The cost of imported crude oil equal to actual cost of the crude oil at point of origin plus transportation cost to the United States.

Limited Work Authorization

A Limited Work Authorization (LWA) may be granted by the Atomic Safety and Licensing Board of the Nuclear Regulatory Commission to an applicant who wants to construct a nuclear powerplant providing that the project has been cleared for all requirements of the National Environmental Protection Act and that the geologic and topographic suitability of the reactor site has been found satisfactory. The LWA allows an applicant to proceed with site excavation, install temporary construction and service facilities, construct service roads, and erect structures and components not subject to normal quality assurance inspections. It may save a utility from 6 to 8 months in total construction time. However, because the ultimate approval of a construction permit is based on all evidence revealed during the licensing hearings, the successful award of an LWA is no guarantee that a construction permit will also be granted.

Line Miles of Seismic Exploration

The distance along the earth's surface that is covered by seismic traverses.

Lower Tier Crude Oil

Old crude oil.

Lower Tier Ceiling Price Determination

The lower tier ceiling price for a particular grade of domestic crude oil in a particular field is the sum of (1) the highest posted price at 6 a.m., local time, May 15, 1973, for transactions in that grade of crude oil in that field; or if there was no posted price in that field for that grade of domestic crude oil, the related price for that grade of domestic crude oil which is most similar in kind and quality in the nearest field for which prices were posted; and (2) the amount mandated in the Monthly Price Adjustment Schedules published by ERA in the *Federal Energy Guidelines* (Part 212.77-13847 Appendix).

Major Brand

Lundberg Survey, Inc., defines major brand as an integrated company that produces, refines, transports, and markets in Interstate Commerce under its own brand(s) in 10 or more States.

Motor Gasoline Production

Total production of motor gasoline by refineries, measured at the refinery outlet. Relatively small quantities of motor gasoline are produced at natural gas processing plants, but these quantities are not included.

Motor Gasoline Stocks

Primary motor gasoline stocks held by gasoline producers. Stocks at natural gas processing plants are not included.

National Domestic Crude Oil Supply Ratio

Old oil receipts adjusted for upper-tier receipts, small refiner bias, and other minor adjustments, divided by crude runs to stills adjusted for residual fuel entitlements.

National Old Oil Supply Ratio

Old oil receipts, adjusted for small refiner bias and exemptions, divided by crude runs to stills adjusted for entitlements issued for imported refined products.

Natural Gas Liquids (NGL)

Products obtained from natural gasoline plants, cycling plants and fractionators after processing the natural gas. Included are ethane, liquefied petroleum (LP) gases (propane, butane, and propane-butane mixtures), natural gasoline, plant condensate, and minor quantities of finished products such as gasoline, special naphthas, jet fuel, kerosene, and distillate fuel oil.

New Crude Oil

1. Prior to February 1, 1976: the total number of barrels of domestic crude oil produced and sold in a specific month, less the base production control for that month and less the current cumulative deficiency.
2. Effective February 1, 1976: the total number of barrels of domestic crude oil produced and sold in a specific month, less the property's base production control level for that month and less the current cumulative deficiency since February 1, 1976.

Nonbranded Independent Marketer

A firm which is engaged in the marketing or distribution of refined petroleum products, but which (1) is not a refiner, (2) is not a firm which controls, is controlled by, is under common control with, or is affiliated with a refiner (other than by means of a supply contract), and (3) is not a branded independent marketer.

Old Crude Oil

1. Prior to February 1, 1976: the total number of barrels of crude oil produced and sold from a property in a specific month, less the total number of barrels of new crude oil for that property in that month and less the total number of barrels of released crude oil for that property in that month.
2. Effective February 1, 1976: the total number of barrels of crude oil produced and sold from a property in a specific month, less the total number of barrels of new crude oil for that property in that month.

Primary Stocks of Refined Petroleum Products

Stocks held at refineries, bulk terminals, and pipelines. They do not include stocks held in secondary storage

facilities, such as those held by jobbers, dealers, independent marketers, and consumers.

Property

Prior to August 26, 1976, a property was defined as the right to produce domestic crude oil, which arises from a lease or from a fee interest. This definition was interpreted to apply only to a surface lease. In August 1976 the definition of a property was changed so that a producer may treat as a separate property each separate and distinct producing reservoir subject to the same right to produce crude oil, provided that such reservoir is recognized by the appropriate governmental regulatory authority as a producing formation that is separate and distinct from, and not in communication with, any other producing formation. Although this new definition was not implemented until August 26, 1976, it was made effective retroactively to February 1, 1976. (F.R. 36171, August 26, 1976)

Refined Petroleum Products Imports

Imports (into the 50 States and the District of Columbia) of motor gasoline, naphtha-type jet fuel, kerosene type jet fuel, kerosene, distillate fuel oil, residual fuel oil, liquefied petroleum gases, petrochemical feedstocks, special naphtha, lubricants, waxes, asphalt, plant condensate, and unfinished oils. Included are imports of refined products for bonded and military use, and imports from U.S. territories and the Hawaiian Foreign Trade Zone.

Refiner Acquisition Cost

The cost to the refiner, including transportation and fees, of crude petroleum. The composite cost is the average of domestic and imported crude costs and represents the amount of crude cost which refiners may pass on to their customers.

Released Crude Oil

An amount of crude oil produced from a property in a particular month prior to February 1, 1976, which is equal to the total number of barrels of new crude oil produced and sold from that property in that month. The amount of released crude oil for a property in a particular month shall not exceed the base production control level for that property in that month.

Residual Fuel Oil

The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are boiled off in refinery operations. Included are products known as ASTM grades Nos. 5 and 6 oil, heavy diesel oil, Navy Special Oil, Bunker C oil, and acid sludge and pitch used as refinery fuels. Residual fuel oil is used for the production of electric power, for heating, and for various industrial purposes.

Rotary Rig

Machine used for drilling wells that employs a rotating tube attached to a bit for boring holes through rock.

Separative Work Unit (SWU)

The measure of work required to produce enriched uranium from natural uranium. Enrichment plants separate natural uranium feed material into two groups, an enriched product group with a higher percentage of U-235 than the feed material and a depleted tails group with a lower percentage of U-235 than the feed material. To produce 1 kilogram of enriched uranium containing 2.8 percent U-235, and a depleted tails assay containing 0.3 percent U-235, it requires 6 kilograms of natural uranium feed and 3 kilograms of separative work units (3 SWU).

Startup Test Phase of Nuclear Powerplant

A nuclear powerplant that has been licensed by the Nuclear Regulatory Commission to operate, but that is in the initial testing phase during which production of electricity may not be continuous. In general, when the electric utility is satisfied with the plant's performance, it formally accepts the plant from the manufacturer, and places it in "commercial operation" status. A request is then submitted to the appropriate utility rate commission to include the powerplant in the rate base calculation.

Stripper Well Property

A property whose average daily production of crude oil per well (excluding condensate recovered in nonassociated production) did not exceed 10 barrels per day during any preceding consecutive 12-month period beginning after December 31, 1972.

Synthetic Natural Gas (SNG)

A product resulting from the manufacture, conversion, or reforming of petroleum hydrocarbons which may be easily substituted for or interchanged with pipeline quality natural gas.

Uncontrolled Crude Oil

That portion of domestic crude oil production including new, released, and stripper oil which, before February 1, 1976, could be sold at a price exceeding the ceiling price.

Unrecouped Costs

Costs which have not been recovered in the current month's product prices but which have been "banked" for later use.

Upper Tier Crude Oil

Effective February 1, 1976, upper tier crude oil included new crude oil and crude oil produced from a stripper well lease. Effective September 1, 1976, upper tier crude oil includes new crude oil only.

Upper Tier Ceiling Price Determination

The upper tier ceiling price for a particular grade of domestic crude oil in a particular field is (1) the highest posted price on September 30, 1975, for transactions in that grade of crude oil in that field in September 1975, or if there was no posted price in that field for that grade of domestic crude oil, the related price for that grade of

domestic crude oil which is most similar in kind and quality in the nearest field for which prices were posted; less (2) the amount mandated in the Monthly Price Adjustment Schedules published by ERA in the *Federal Energy Guidelines* (Part 212.77 .13847 Appendix).

Well

A hole drilled for the purpose of finding or producing crude oil or natural gas or providing services related to the production of crude oil or natural gas. Wells are classified as oil wells, gas wells, dry holes, stratigraphic tests, or service wells. This is a standard definition of the American Petroleum Institute.

Explanatory Notes

1. Domestic production of energy includes production of crude oil and lease condensate, natural gas (wet), and coal (anthracite, bituminous, and lignite), as well as electricity output from hydroelectric and nuclear powerplants and industrial hydroelectric power production. The volumetric data were converted to approximate heat contents (Btu-values) of the various energy sources using conversion factors listed in the Units of Measure.

2. U.S. imports of fossil fuels include imports of crude oil, refined petroleum products, and natural gas (dry).

3. Domestic consumption of energy includes domestic demand for refined petroleum products, consumption of coal (anthracite, bituminous, and lignite) and natural gas (dry), electricity output from hydroelectric and nuclear powerplants, industrial hydroelectric power production, and net imports of electric power. Approximate heat contents (Btu-values) were derived using conversion factors listed in the Units of Measure. Electricity imports were converted using the Btu-content of hydroelectric power. 1977 electricity imports were estimated on the basis of the import level for 1976.

4. Domestic demand figures for natural gas liquids (NGL) as reported by BOM and reproduced in this publication do not include amounts utilized by refineries for blending purposes in the production of finished products, principally gasoline. Use of NGL at refineries is reported in a separate column. The production series cited in this publication shows both NGL produced at processing plants and liquefied gases produced at refineries (LRG). NGL produced at refineries is extracted from crude oil and hence, to avoid double counting, should not be included in calculations of total U.S. production of petroleum liquids. The stock series shown in this volume includes natural gas liquids held as stocks at both natural gas processing plants and at refineries and LRG held at refineries.

5. The petroleum short-term demand forecasting model uses historical consumption data to construct regression equations for each of eight major petroleum products on a regional level. Each equation attempts to capture the relationship between final demand for that product and the factors influencing that demand. The explanatory factors used in predicting product demand include (1) macroeconomic variables such as real adjusted gross income, (2) real product prices, (3) variables representing the effects of weather and other seasonal variations in demand, and (4) other factors relevant to a particular product.

Assumptions underlying the current short-term forecast are: normal weather and a level of economic activity producing real GNP growth rates of 5.8, 5.4, and 5.1 percent for 1977, 1978, and 1979, respectively.

The supply model includes an assumed level of domestic crude oil and NGL production and inventory changes. Imports are determined as the incremental supply required to meet total demand for refined products not satisfied by domestic production or inventory drawdown.

6. Domestic consumption of natural gas includes the quantities sold to consumers plus the gas used for plant and pipeline fuel, after the natural gas liquids have been extracted. All monthly consumption data are estimated. Marketed production of natural gas includes gross withdrawals from the ground less the quantities used for repressuring and the amount vented and flared, before the natural gas liquids have been extracted.

7. The Federal Energy Administration and Federal Power Commission began the coordinated collection and compilation of monthly underground storage information from all underground storage operators in the United States in October 1975. Initial storage information reported was for the month of September 1975. Comparable monthly information for total U.S. storage operations is not available for prior periods.

The total gas in storage is the total volume of gas (base gas plus working gas) in storage reservoirs as of the end of the month. Base gas is the volume of gas, including all native gas in place at the time of conversion to storage, needed as a permanent inventory to maintain adequate reservoir pressures and deliverability rates throughout the withdrawal season. Base gas includes the volumes which will not be recoverable upon termination of storage operations. Working gas is the volume of gas above the designated base gas level available for withdrawal.

8. Bituminous coal and lignite consumption is calculated by EIA from information provided by the Federal Power Commission, Department of Commerce, and reports from selected manufacturing industries and retailers. Domestic consumption data in this series, therefore, approximate actual consumption. This is in contrast to domestic demand reported for petroleum products, which is a calculated value representing total disappearance from primary supplies.

Bituminous coal and lignite production is calculated from the number of railroad cars loaded at mines, based on the assumption that approximately 60 percent of the coal produced is transported by rail. Production data are estimated by EIA from Association of American Railroads reports of carloadings.

9. Class A and B utilities are the only utilities required to report their number of customers on Form 5. Class A and B investor-owned utilities are defined, respectively, as those with annual sales that exceed \$2.5 million, and those with annual sales that are between \$1 million and \$2.5 million. In 1976 there were 212 Class A and B utilities; collectively they represented 80 percent of the total industry kilowatt-hour sales. In the month of June 1977 Class A and B utilities accounted for 77.9 percent of ultimate industrial sales, 74.7 percent of ultimate residential sales, and 85.2 percent of ultimate commercial sales.

10. Quantities of uranium are measured by various units at different stages in the fuel cycle. At the mill, quantities are usually expressed as pounds or short tons of U_3O_8 . After the conversion stage, the units of measure are either metric tons (MT) of UF_6 or metric tons of uranium (MTU). The later designation expresses only the elemental

uranium content of UF₆.

Following the enrichment stage, the same units are used, but the U-235 content has been enhanced at the expense of loss of material. At the fabrication stage, UF₆ is changed to UO₂, and the standard unit of measure is the MTU. We have chosen to present all uranium quantities as MTU; conversion factors to other units are given in the Units of Measure section.

11. The units used to describe power generation at nuclear plants are based on the watt, which is a unit of power. (Power is energy produced per unit of time.) As with fossil-fueled plants, nuclear plants have three design power ratings. The thermal rating (expressed in thermal megawatts) is the rate of heat production by the reactor core. The gross electrical rating (expressed in electrical megawatts, MWe) is the generator capacity at the stated thermal rating of the plant. The net electrical rating (also expressed in MWe) is the power available as input to the electrical grid after subtracting the power needed to operate the plant. (A typical nuclear plant needs 5 percent of its generated electricity for its own operation.)

The electrical energy produced by a plant is expressed either as megawatt hours (MWh) or kilowatt hours (KWh). Tables in the nuclear section show generated electricity as average electrical power. This enables a more direct comparison to design capacity and to previous months' performances. To obtain the quantity of electricity generated during a given time period (in kilowatt hours), multiply the average power level (in kilowatts) by the number of hours during that period.

The energy extracted from uranium fuel is expressed as thermal megawatt days per metric ton of uranium (MWD/MTU). The production of plutonium in the fuel rods is expressed as kilograms of plutonium per metric ton of discharged uranium (kg/MTU).

12. The Residential and Commercial Sector consists of housing units, non-manufacturing business establishments (e.g., wholesale and retail businesses), health and educational institutions, and government office buildings. The Industrial Sector is made up of construction, manufacturing, agriculture, and mining establishments. The Transportation Sector consists of both private and public passenger and freight transportation, as well as government transportation, including military operations. The Electric Utilities Sector is made up of privately- and publicly-owned establishments which generate electricity primarily for resale.

13. Degree-days relate demand for energy to outdoor air temperature. Cooling degree-days are defined as deviations of the mean daily temperature at a sampling station above a base temperature equal to 65°F by convention. Heating degree-days are deviations of the mean daily temperature below 65°F. For example, if a weather station recorded a mean daily temperature of 78°F, cooling degree-days for that station would be 13 (and heating degree-days, 0). A weather station recording a mean daily temperature of 40°F would report 25 heating degree-days (and 0 cooling degree-days).

There are two degree-day data bases maintained by the National Oceanic and Atmospheric Administration.

Weekly degree-day information is based on mean daily temperatures recorded at about 200 major weather stations around the country. Monthly data are based on readings at more than 8,000 weather stations. The temperature information recorded at these weather stations is used to calculate statewide degree-day averages based on population. The State figures are then aggregated into Petroleum Administration for Defense (PAD) Districts and into the national average, also using a population weighting method.

Weekly weather reports are available much sooner than the monthly reports, and therefore the degree-day information published in the *Monthly Energy Review* is normally derived from the weekly source.

14. Prior to January 1975, diesel fuel prices were obtained from retail gasoline dealers that also sold diesel fuel. Beginning in January 1975, the diesel fuel survey was expanded to include selected truckstops plus additional retail gasoline dealers that sold diesel fuel. Selling price estimates are based on a survey of 31 cities. Margins are based on a survey of 10 cities.

15. Prior to February 1976, the domestic crude petroleum wellhead price represented an estimate of the average of posted prices; after February 1976, the wellhead price represents an average of first sale prices. For the 2-year period January 1974 through January 1976, the old oil price at the wellhead was originally estimated to be \$5.25 per barrel based on representative postings. This estimate was revised in July 1976 after a survey of crude oil purchasers was implemented and more complete data became available. Estimates of the average old oil price given in the table for months prior to February 1976 are based on prices for old oil reported on new oil leases, and were not derived from a statistically valid sample of old oil leases.

16. The refiner acquisition cost of domestic crude petroleum is the price paid by refiners for domestic crude petroleum, unfinished oils, and natural gas liquids and includes transportation costs from the wellhead to the refinery. The refiner acquisition cost of imported crude petroleum is the average landed cost of imported crude petroleum to the refiner and represents the amount which may be passed on to the consumer. It incorporates transportation costs and fees (including the supplemental import fees) and any other costs incurred in purchasing and shipping crude oil to the United States.

17. The estimated landed cost of imported crude petroleum from selected countries does not represent the total cost of all imported crude. Prior to March 1975, imported crude costs to U.S. company-owned refineries in the Caribbean were not included in the landed cost, and costs of crude petroleum from countries which export only small amounts to the United States were also excluded. Beginning in March 1975, however, coverage was expanded to include U.S. company-owned refineries in the Caribbean. Landed costs do not include supplemental fees.

18. The weighted average utility fuel cost for the total United States includes distillate fuel oil delivered to utilities whereas the regional breakdown for residual fuel oil prices represents only No. 6 fuel oil prices.

Units of Measure

Weight

1 metric ton	<i>contains</i>	1.102 short tons
1 long ton	<i>contains</i>	1.120 short tons

Conversion Factors for Crude Oil

Average gravity

1 barrel	<i>contains</i>	42 gallons
1 barrel	<i>weighs</i>	0.136 metric tons (0.150 short tons)
1 metric ton	<i>contains</i>	7.33 barrels
1 short ton	<i>contains</i>	6.65 barrels

Conversion Factors for Uranium

1 short ton (U_3O_8)	<i>contains</i>	0.769 metric tons of uranium
1 short ton (UF_6)	<i>contains</i>	0.613 metric tons of uranium
1 metric ton (UF_6)	<i>contains</i>	0.676 metric tons of uranium

Approximate Heat Content of Various Fuels

Petroleum

Crude Oil	5.800 million Btu/barrel
Refined products	
Imports, average	6.000 million Btu/barrel
Consumption, average	5.4959 million Btu/barrel
Gasoline	5.248 million Btu/barrel
Jet Fuel, average	5.604 million Btu/barrel
Naphtha-type	5.355 million Btu/barrel
Kerosene-type	5.670 million Btu/barrel
Distillate fuel oil	5.825 million Btu/barrel
Residual fuel oil	6.287 million Btu/barrel

Natural gas liquids 4.023 million Btu/barrel

Natural gas

Wet	1,095 Btu/cubic foot
Dry	1,021 Btu/cubic foot

Coal

Bituminous and lignite	
Production	23.50 million Btu/short ton
Consumption	22.80 million Btu/short ton
Anthracite	25.40 million Btu/short ton

Electricity Conversion Heat Rates

Fossil fuel steam-electric

Coal	10,280 Btu/kilowatt hour
Gas	10,784 Btu/kilowatt hour
Oil	10,804 Btu/kilowatt hour

Nuclear steam electric 10,660 Btu/kilowatt hour

Hydroelectric 10,383 Btu/kilowatt hour

Electricity Consumption 3,412 Btu/kilowatt hour

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